

THOMASON
COLLEGE OF CIVIL ENGINEERING
ROORKEE, U. P.

CALENDAR
1941-42



ALIAHABAD
SUPERINTENDENT, PRINTING AND STATIONERY, UNITED PROVINCES, INDIA
1942

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THOMASON COLLEGE OF CIVIL ENGINEERING.

CALENDAR, 1941-42 SESSION.

GENERAL AND OFFICE.

OCTOBER, 1941

NOVEMBER, 1941

OCTOBER, 1941			NOVEMBER, 1941		
Date	Day of week	General and Office	Date	Day of week	General and Office
1	W	Entr roll to the Accountant General United Provinces	1	S	Entr roll to the Accountant General United Provinces
2	Th		2	S	
3	F		3	M	Guru Nanak's Birth day
4	S		4	T	
5	S		5	W	
6	M		6	Th	
7	T		7	F	
8	W		8	S	
9	Th		9	S	
10	F		10	M	
11	S		11	T	
12	S		12	W	
13	M		13	Th	
14	T		14	F	
15	W		15	S	
16	Th		16	S	
17	F	Last Friday of Ramzan	17	M	
18	S		18	T	
19	S		19	W	
20	M	Dawal	20	Th	
21	T		21	F	
22	W	Id ul Fitr	22	S	
23	Th		23	S	
24	F	Date of re opening the College	24	M	
25	S		25	T	
26	S		26	W	
27	M		27	Th	
28	T		28	F	
29	W		29	S	
30	Th		30	S	
31	F				

DECEMBER, 1941

JANUARY, 1942

Date	Days of week	General and Office	Date	Days of week	General and Office
1	M	Rent roll to the Accountant General United Provinces	1	Th	<i>New Year's Day</i>
2	T		2	F	Rent roll to the Accountant General United Provinces
3	W		3	S	
4	Th		4	S	
5	F		5	M	In lent of Provincial forms
6	S		6	T	
7	S		7	W	
8	M		8	Th	
9	T		9	F	
10	W		10	S	
11	Th		11	S	
12	F		12	M	
13	S		13	T	
14	S	Indent of Treasury forms	14	W	
15	M		15	Th	
16	T		16	F	
17	W		17	S	
18	Th		18	S	<i>Basant Panchmi</i>
19	F	Final Sports day	19	M	
20	S		20	T	
21	S	Christmas Vacation commences	21	W	
22	M		22	Th	
23	T		23	F	
24	W		24	S	
25	Th		25	S	} <i>Molarrum</i>
26	F		26	M	
27	S		27	T	
28	S		28	W	
29	M		29	Th	Mid Seasonal Examination of all classes start
30	T		30	F	
31	W		31	S	

FEBRUARY, 1941

Date	Days of week	General and Office
1	S	
2	M	Roll call to the Accountant General United Provinces.
3	T	2nd year Civil Engineer class Survey Camp starts
4	W	Civil Engineer class 2nd and 1st years and Overseer class 2nd and 1st years 2nd term or 2nd Half session starts
5	Th	
6	F	
7	S	
8	S	
9	M	
10	T	
11	W	
12	Th	
13	F	<i>Shiva Ratri</i>
14	S	
15	S	
16	M	
17	T	
18	W	
19	Th	
20	F	
21	S	
22	S	
23	M	
24	T	
25	W	
26	Th	
27	F	
28	S	
29	S	
30	M	
31	T	

MARCH, 1942

Date	Days of week	General and Office
1	S	
2	M	} <i>Hols</i>
3	T	
4	W	
5	Th	Roll call to the Accountant General, United Provinces.
6	F	
7	S	
8	S	
9	M	
10	T	
11	W	
12	Th	
13	F	
14	S	
15	S	
16	M	
17	T	
18	W	
19	Th	
20	F	
21	S	
22	S	
23	M	Count certificate forms to be supplied to officers
24	T	Final Examination III year Civil Engineer class starts.
25	W	Registration of abbreviated telegraphic address
26	Th	Course of Study and Syllabus to be sent to the Director of Public Instruction United Provinces
27	F	<i>Ravi Naumi</i>
28	S	Letter to Director of Public Instruction United Provinces regarding training of apprentice overseers
29	S	Minor project III year Civil Engineer class handed out
30	M	
31	T	<i>Bara Wafat</i>

Figures of educated employed and un-employed to be sent to the Director of Public Instruction, United Provinces

APRIL, 1942

Date	Days of week	General and Office
1	W	Rent roll to the Accountant General United Provinces
2	Th	
3	F	Good Friday
4	S	Saturday before Easter
5	S	
6	M	Easter Monday
7	T	
8	W	
9	Th	
10	F	
11	S	
12	S	
13	M	Hardy's Fair
14	T	
15	W	
16	Th	
17	F	
18	S	Minor Project III year Civil Engineer class handed in and Major project handed out.
19	S	
20	M	
21	T	
22	W	
23	Th	
24	F	
25	S	
26	S	
27	M	Final examination II year Overseer class start
28	T	
29	W	
30	Th	

MAY, 1942

Date	Days of week	General and Office
1	F	Rent roll to the Accountant General United Provinces
2	S	Project to Overseer class handed out
3	S	
4	M	
5	T	
6	W	
7	Th	
8	F	
9	S	Statistical return
10	S	
11	M	
12	T	
13	W	
14	Th	
15	F	Detailed statement of permanent establishment to be sent to the Accountant General United Provinces.
16	S	Schedule of new demands
17	S	
18	M	Return of excess tents
19	T	
20	W	
21	Th	
22	F	
23	S	
24	S	Empire Day
25	M	
26	T	
27	W	
28	Th	
29	F	
30	S	Entrance examinations for Overseer class start.
31	S	

ALMANAC

JUNE, 1942

JULY, 1942

Date	Days of week	General and Office		Date	Days of week	General and Office	
1	M	Rent roll to the Accountant General, United Provinces		1	W	Rent roll to the Accountant General, United Provinces.	
2	T			2	Th		
3	W	Entrance examinations for Civil Engineer and Draftsman classes start.		3	F		
4	Th			4	S	1st and 2nd year Civil Engineer class and Overseer class 1st year cease	
5	F						
6	S	Major Project III year Civil Engineer class and Project II year Overseer class stand still.		5	S		
7	S			6	M		
8	M	General Examinations of Civil Engineer class 1st and 2nd year and Overseer class 1st year start		7	T		
9	T			8	W		
10	W			9	Th		
11	Th			10	F		
12	F			11	S		
13	S			12	S		
14	S			13	M		
15	M	Regular classes of 1st and 2nd year Civil Engineer and 1st year Overseer class start		14	T		
16	T			15	W	Probable date of Convocation	
17	W			16	Th		
18	Th			17	F		
19	F			18	S		
20	S			19	S		
21	S			20	M		
22	M	Return of textile requirements to the Director of Public Instruction, United Provinces		21	T		
23	T			22	W		
24	W			23	Th		
25	Th			24	F		
26	F			25	S		
27	S			26	S		
28	S			27	M		
29	M			28	T		
30	T			29	W		
				30	Th		
				31	F		

APRIL, 1942

Date	Days of week	General and Office
1	W	Rent roll to the Accountant General, United Provinces
2	Th	
3	F	Good Friday
4	S	Saturday before Easter
5	S	
6	M	Easter Monday
7	T	
8	W	
9	Th	
10	F	
11	S	
12	S	
13	M	Hardwar Fair
14	T	
15	W	
16	Th	
17	F	
18	S	Minor Project III year Civil Engineer class handed in and Major project handed out.
19	S	
20	M	
21	T	
22	W	
23	Th	
24	F	
25	S	
26	S	
27	M	Final examination II year Overseer class start
28	T	
29	W	
30	Th	

MAY, 1942

Date	Days of week	General and Office
1	F	Rent roll to the Accountant General United Provinces
2	S	Project to Overseer class handed out
3	S	
4	M	
5	T	
6	W	
7	Th	
8	F	
9	S	Statistical return.
10	S	
11	M	
12	T	
13	W	
14	Th	
15	F	Detailed statement of permanent establishment to be sent to the Accountant General, United Provinces.
16	S	Schedule of new demands
17	S	
18	M	Return of excess tent
19	T	
20	W	
21	Th	
22	F	
23	S	
24	S	Empire Day.
25	M	
26	T	
27	W	
28	Th	
29	F	
30	S	Entrance examinations for Overseer class start
31	S	

JUNE, 1942

JULY, 1942

JUNE, 1942			JULY, 1942		
Date	Days of week	General and Office	Date	Days of week	General and Office
1	M	Report to the Accountant General, United Provinces	1	W	Report to the Accountant General, United Provinces.
2	T		2	Th	
3	W	Entrance examinations for Civil Engineer and Draftsman classes start.	3	F	
4	Th		4	S	1st and 2nd year Civil Engineer classes and Oversee class 1st year cease
5	F				
6	S	Major Project III year Civil Engineer class and Project II year Oversee class land-in.	5	S	
			6	M	
7	S		7	T	
8	M	Entrance examinations of Civil Engineer class 1st and 2nd year and Oversee class 1st year start.	8	W	
9	T		9	Th	
10	W		10	F	
11	Th		11	S	
12	F		12	S	
13	S		13	M	
14	S		14	T	
15	M	Regular classes of 1st and 2nd year Civil Engineer and 1st year Oversee class start.	15	W	Probable date of Convocation
16	T		16	Th	
17	W		17	F	
18	Th		18	S	
19	F		19	S	
20	S		20	M	
			21	T	
21	S		22	W	
22	M	Return of textile requirements to the Director of Public Instruction United Provinces	23	Th	
23	T		24	F	
24	W		25	S	
25	Th		26	S	
26	F		27	M	
27	S		28	T	
			29	W	
28	S		30	Th	
29	M		31	F	
30	T				

APRIL, 1942

Date	Days of week	General and Office
1	W	Rent roll to the Accountant General, United Provinces
2	Th	
3	F	Good Friday
4	S	Saturday before Easter
5	S	
6	M	Easter Monday
7	T	
8	W	
9	Th	
10	F	
11	S	
12	S	
13	M	Harduar Fair
14	T	
15	W	
16	Th	
17	F	
18	S	Minor Project III year Civil Engineer class handed in and Major project handed out
19	S	
20	M	
21	T	
22	W	
23	Th	
24	F	
25	S	
26	S	
27	M	Final examination II year Overseer class start.
28	T	
29	W	
30	Th	

MAY, 1942

Date	Days of week	General and Office
1	F	Rent roll to the Accountant General United Provinces
2	S	Project to Overseer class handed out
3	S	
4	M	
5	T	
6	W	
7	Th	
8	F	
9	S	Statistical return
10	S	
11	M	
12	T	
13	W	
14	Th	
15	F	Detailed statement of permanent establishment to be sent to the Accountant General United Provinces
16	S	Schedule of new demands
17	S	
18	M	Return of excess tent
19	T	
20	W	
21	Th	
22	F	
23	S	
24	S	Empire Day
25	M	
26	T	
27	W	
28	Th	
29	F	
30	S	Entrance examinations for Overseer class start
31	S	

APRIL, 1942

MAY, 1942

Date	Days of week	General and Office	Date	Days of week	General and Office
1	W	Rent roll to the Accountant General, United Provinces	1	F	Rent roll to the Accountant General United Provinces
2	Th		2	S	Project to Oversee class handed out
3	F	Good Friday	3	S	
4	S	Saturday before Easter	4	M	
5	S		5	T	
6	M	Easter Monday	6	W	
7	T		7	Th	
8	W		8	F	
9	Th		9	S	Statistical return
10	F		10	S	
11	S		11	M	
12	S		12	T	
13	M	Hardwar Fair	13	W	
14	T		14	Th	
15	W		15	F	Detailed statement of permanent establishment to be sent to the Accountant General, United Provinces
16	Th		16	S	Schedule of new demands
17	F		17	S	
18	S	Minor Project III year Civil Engineer class handed in and Major project handed out	18	M	Return of excess tent
19	S		19	T	
20	M		20	W	
21	T		21	Th	
22	W		22	F	
23	Th		23	S	
24	F		24	S	Empire Day
25	S		25	M	
26	S		26	T	
27	M	Final examination II year Overseer class start	27	W	
28	T		28	Th	
29	W		29	F	
30	Th		30	S	Entrance examinations for Overseer class start
			31	S	

JUNE, 1942

JULY, 1942

Date	Days of week	General and Office	Date	Days of week	General and Office
1	M	Rest roll to the Accountant General, United Provinces.	1	W	Rest roll to the Accountant General, United Provinces.
2	T		2	Th	
3	W	Entrance examinations for Civil Engineer and Draftsman classes start.	3	F	
4	Th		4	S	1st and 2nd year Civil Engineer classes and Over-seer class 1st year exam
5	F				
6	S	Major Project III year Civil Engineer class and Proj of II year Over-seer class land-in	5	S	
			6	M	
7	S		7	T	
8	M	Annual Examinations of Civil Engineer class 1st and 2nd year and Over-seer class 1st year start	8	W	
9	T		9	Th	
10	W		10	F	
11	Th		11	S	
12	F		12	S	
13	S		13	M	
14	S		14	T	
15	M	Regular classes of 1st and 2nd year Civil Engineer and 1st year Over-seer class start	15	W	Probable date of Convocation
16	T		16	Th	
17	W		17	F	
18	Th		18	S	
19	F		19	S	
20	S		20	M	
21	S		21	T	
22	M	Return of textile requirements to the Director of Public Instruction, United Provinces	22	W	
23	T		23	Th	
24	W		24	F	
25	Th		25	S	
26	F		26	S	
27	S		27	M	
28	S		28	T	
29	M		29	W	
30	T		30	Th	
			31	F	

APRIL, 1942

Date	Days of week	General and Office
1	W	Rent roll to the Accountant General, United Provinces
2	Th	
3	F	<i>Good Friday</i>
4	S	<i>Saturday before Easter</i>
5	S	
6	M	<i>Easter Monday</i>
7	T	
8	W	
9	Th	
10	F	
11	S	
12	S	
13	M	<i>Hardware Fair</i>
14	T	
15	W	
16	Th	
17	F	
18	S	Minor Project III year Civil Engineer class handed in and Major project handed out
19	S	
20	M	
21	T	
22	W	
23	Th	
24	F	
25	S	
26	S	
27	M	Final examination II year Overseer class start
28	T	
29	W	
30	Th	

MAY, 1942

Date	Days of week	General and Office
1	F	Rent roll to the Accountant General, United Provinces
2	S	Project to Overseer class handed out
3	S	
4	M	
5	T	
6	W	
7	Th	
8	F	
9	S	Statistical return
10	S	
11	M	
12	T	
13	W	
14	Th	
15	F	Detailed statement of permanent establishment to be sent to the Accountant General, United Provinces.
16	S	Schedule of new demands
17	S	
18	M	Return of excess tents
19	T	
20	W	
21	Th	
22	F	
23	S	
24	S	<i>Empire Day</i>
25	M	
26	T	
27	W	
28	Th	
29	F	
30	S	Entrance examinations for Overseer class start
31	S	

OCTOBER, 1942

Date	Day of week	General and Office
1	Th	Sent roll to the Accountant General, United Provinces
2	F	
3	S	
4	S	
5	M	
6	T	
7	W	
8	Th	
9	F	
10	S	
11	S	} <i>Id ul Fitr</i>
12	M	
13	T	
14	W	
15	Th	Probable date of reopening the College <i>Dis Ira</i>
16	F	
17	S	
18	S	} <i>Dussehra</i>
19	M	
20	T	
21	W	
22	Th	
23	F	
24	S	
25	S	
26	M	
27	T	
28	W	
29	Th	
30	F	
31	S	

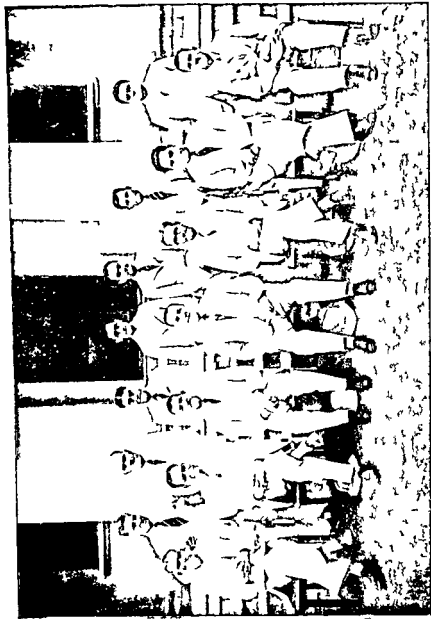
NOVEMBER, 1942

Date	Day of week	General and Office
1	S	Sent roll to the Accountant General, United Provinces.
2	M	
3	T	
4	W	
5	Th	
6	F	
7	S	
8	S	} <i>Dussehra.</i>
9	M	
10	T	
11	W	
12	Th	
13	F	
14	S	
15	S	
16	M	
17	T	
18	W	
19	Th	
20	F	<i>Guru Nanak's Birthday</i>
21	S	
22	S	
23	M	
24	T	
25	W	
26	Th	
27	F	
28	S	
29	S	
30	M	

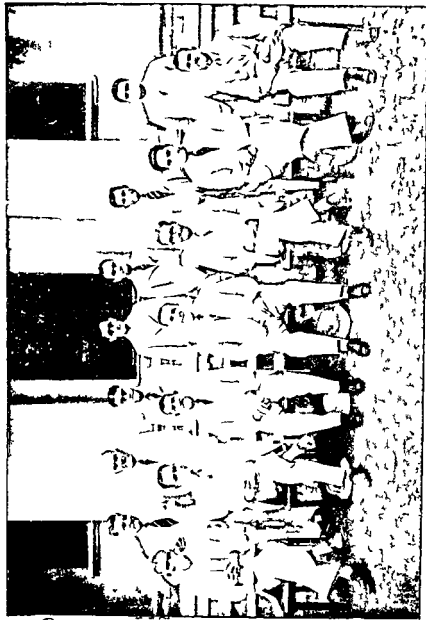
THOMASON COLLEGE OF CIVIL ENGINEERING

Thomason College Advisory Council

1. B. GILBERT Esq B.Sc. 1st Chief Engineer
Buildings and Roads Branch Public Works
Department, United Provinces—*President*
2. L. F. DAWSON Esq B.A., M.A. 1st Chief
Engineer, Public Works Department Irrigation
Branch United Provinces
3. THE DIRECTOR OF PUBLIC INSTRUCTION, UNITED PROVINCES
4. THAKUR PHUL SINGH SAHIB, } REPRESENTATIVE
B.A. LL.B. M.L.A., SAHARANPUR } OF THE UNITED
5. PANDIT KESHAVA DEVA MAL- } PROVINCES LEGIS-
VIYA SAHIB M.Sc. M.L.A. } LATIVE ASSEMBLY
ALLAHABAD
6. G. LACEY Esq B.Sc. M.Inst.C.E., REPRESENTATIVE
OF THE INSTITUTION OF CIVIL ENGINEERS, LONDON
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7. H. G. TRIVEDI Esq M.I.E., REPRESENTATIVE OF THE
UNITED PROVINCES BRANCH OF INSTITUTION OF
ENGINEERS INDIA
8. DR. N. N. GODBOLE, M.A., B.Sc., PH.D. (BERLIN)
PROFESSOR OF INDUSTRIAL CHEMISTRY AND DEAN
OF THE FACULTY OF TECHNOLOGY, BENARES HINDU
UNIVERSITY, BENARES, REPRESENTATIVE OF UNI-
VERSITY EDUCATION, NOMINATED BY UNITED PROV-
INCES GOVERNMENT
9. THE PRINCIPAL THOMASON COLLEGE, ROORKEE—
Secretary



J C POWELL PRICE Esq MA (Cav) (ab) CIE IES Director of Public Instruction
United Provinces with the Staff



J C POWELL PRICE Esq M A (Cantab) G I E S Director of Public Instruction
United Provinces with the Staff

Mechanical and Electrical Engineering

B L SHARMA BSC, TONS (ELECT ENGGG BRISTOL) A W I F E Vacant	Officiating Assistant Profes- sor of Mechanical and Electrical Engineering Lecturer in Mechanical En- gineering
ZAKI-UD DIN AHMAD, BSC HONS DIC PHD (ENGINEERING) LONDON.	Lecturer in Electrical En- gineering
NAND SINGH	Foreman Moulder
P C DUTT	Foreman Mechanic
RAFIQ AHMAD	.. Foreman Carpenter.

Overseer Class and Draftsman Class

P. C. SEN GUPTA, B.SC (ALL)	Head Master.
Vacant ..	. Instructor.
JEWAN LAL .	.. Instructor
REOTINANDAN	.. Instructor.

Office

MOHAN LAL BHARGAVA	.. Head Clerk.
HARDWARI LAL ..	.. Accountant.

Library

MUHAMMAD ISHTIAQ ANSARI, Librarian.	
B A , DIPLOMATE IN LIBRARY SCIENCE	

GENERAL DESCRIPTION OF THE THOMASON COLLEGE

THE Thomason College is a provincial institution maintained and controlled by the Government of the United Provinces but students are admitted under certain conditions from the Central Provinces Central India Rajputana and Burma the Governments of these Provinces paying the cost of training their students A few students are admitted annually from certain Indian States under special conditions Every candidate for entrance is required to produce certain educational and other certificates before he is permitted to appear in the annual competitive entrance examination of his class The competition is keen Candidates are not admitted from the provinces of Bengal Bombay Madras or Punjab as these provinces have their own engineering colleges Full details of the conditions of admission to the Thomason College appear in the circulars of the various classes These circulars are obtainable from the College on prepayment of 9 pies stamps for postage and are included in this calendar

The Thomason College now admits successful and fully qualified candidates to the following classes -

- (a) Civil Engineer Class
- (b) Overseer Class
- (c) Draftsman Class

The Course of Study in the College for each of these classes is given in the Course of Study and Syllabus pamphlet of the class These pamphlets are obtainable on payment from the College Book Depot and are included in this calendar The Civil Engineer Class course is of three years duration

and candidates for it must not be under 17 or above 25 years of age on 1st June immediately preceding the competitive entrance examination, which is held annually in June. The Overseer Class course is of two years' duration and the age limits in this case are 16 and 25 years under the same conditions. The Draftsman Class course is usually of three years' duration and there is no age limit, the qualifying educational standard for the entrance examination of the Draftsman Class is much lower than for the other classes and the entrance examination standard also is lower.

The Civil Engineer Class course approximates to the degree standard in engineering of a British university. The Thomason College grants a diploma on the successful completion of the course. The first year of the course is devoted to Applied Mathematics, Surveying and Drawing, Science and Elementary Civil and Mechanical Engineering; the second year to advanced Mathematics, Theory of Structures, Surveying and Civil Mechanical and Electrical Engineering, and the third year to mainly Civil Engineering, its designs and projects and to Mechanical and Electrical Engineering. An important test of a student's practical ability takes place in the third year, in which, after the preliminary projects, which are set, corrected and criticized by internal examiners, a two months' engineering project is set by an outside examiner. The third year students go into camp for the first portion of this project period and each student works alone across country with his own instruments (theodolite, level and plane table), and his gang of men, returning to Roorkee when he has finished his work in the field to complete his report, designs, calculations, estimates and survey plates. This test, which carries a large number of marks, effectually eliminates the pure theorist from the upper half of the class,

and brings to the fore the man of common sense, ability, character and initiative. The project work is preceded by the final examination which for this class takes place in the last week of March. The Overseer Class students also execute at the end of second year a small project in Roorkee to test their practical ability and application of principles which they learn during their two years course. This project is also preceded by the final examination which for this class takes place in the last week of April.

For other classes, sessional examinations are held in June before the end of each College Session; also mid sessional examination for all classes are held by the first week of February each year. Every student is required to obtain a certain qualifying standard (see pages 128 and 172) for promotion to the next class. The college session usually begins on 16th October and usually ends on 15th July. Each session is followed by a long vacation of three months during the unhealthy monsoon period when outdoor work would be impossible. During each session, the College closes for ten days at Christmas.

According to the total number of marks obtained, details of which are given on pages 128 and 172 the following awards are made to students who successfully complete the College course :

Civil Engineer class students	An Honour or Ordinary Diploma
Overseer class students	A Higher or Ordinary Certificate.
Draftsman class students	Certificate as Draftsman. If qualified in estimating a remark to that effect will be given in the certificate.

A successful Civil Engineer class student is usually posted as an unpaid apprentice to the Public Works department in th-

Province of his domicile for one year to learn practical methods of work and the control of labour

Overseer class students of United Provinces domicile are offered unpaid apprenticeships in the Public Works Department At the end of the year of apprenticeship, appointments to the Subordinate Engineering Service of the United Provinces depend on vacancies

An employment register is maintained for the benefit of those students who do not obtain employment or are out of employment

The probable current monthly expenses of a student are shown at end of the circular of each class A number of scholarships are awarded in the Civil Engineer Class Overseer Class and Draftsman Class

The Thomason College main building is large and spacious It has laboratories classrooms and model rooms for the various departments The equipment of instruments and apparatus is complete and as up to date as funds permit The College Workshops are also well fitted with machinery and apparatus The College has its own Dairy, Hospital, Book Depot, Meteorological Observatory and an electrical supply system giving current for electric lights fans and motors in all buildings The drinking water is pumped direct from tube wells into overhead reservoirs All the pumps are operated electrically The Civil Engineer Class and Overseer Class students and some of the Draftsman Class students live in Hostels grouped in the rear of the College Each student of the Civil Engineer class has a furnished room and bathroom The Civil Engineer Class students have both a club and a common mess To join the former is compulsory and to join the latter is optional Most of the staff have detached bungalows with

gardens. A plan of the College and a map of the estate appear at the end of this calendar. Many facilities for recreation are provided for the students. There are a number of tennis courts, squash racquets courts, football and hockey grounds, a cricket ground and a large boat club on the Ganges Canal with rowing and sculling boats. The students are encouraged to take part in all games and sports in order to fit them for their profession and also for their own benefit. Athletic Sports and a Regatta are held annually and all Civil Engineer Class students are now enrolled in the Indian Auxiliary Force or the University Training Corps for military training, while the Overseer Class students perform physical drill under a military instructor. Physical drill is compulsory for all students.

HISTORY OF THE THOMASON COLLEGE

The Thomason College, the oldest engineering college in India owes its birth to the waters of Mother Ganges. Without the River Ganges there would have been no canal of that name, and, without the canal, no college at Roorkee. The Ganges Canal soon reached maturity, but its offspring, the Thomason College, planned by men of wisdom and foresight, grew steadily from the smallest beginnings till it attained the proud position which it now holds as one of the leading educational institutions of the East with great traditions and a reputation second to none.

The establishment of an engineering college at Roorkee was suggested to the Honourable James Thomason, Lieut. Governor of the North West Provinces, about 1846, by Colonel Cautley of the Bengal Engineers, who had been Superintendent General of Canals since 1836 and was busily engaged in the scheme, first contemplated by Colonel Colvin of the same Corps, for the employment of the waters of the Ganges for irrigation. While there is no doubt that the immediate requirements of the Ganges Canal in engineer officers and subordinates were chiefly responsible for the foundation of the Thomason College, it is probable that broader issues also influenced the minds of Mr Thomason and his advisers and that an important point was the necessity for some systematic training for Civil Engineers in India, or at least in Northern India. The Western Jumna Canals were commenced in 1817 and the Eastern Jumna Canal in 1822. In 1847 the annual expenditure on establishment for these undertakings was Rs 1 04 000 and on annual repairs

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The circumstances which caused the selection of Roorkee as the site for the College were thus stated in the proposal made to the Governor General on September 23, 1847 —

The establishments now forming at Roorkee near the Solani Aqueduct on the Ganges Canal afford peculiar facilities for instructing Civil Engineers. There are large workshops and most important structures in course of formation. There are also a library and a model room. Above all a number of scientific and experienced officers are constantly assembled on the spot or occasionally resorting thither. These officers however all have their appropriate and engrossing duties to perform and cannot give time for that careful and systematic instruction which is necessary for the formation of an expert Civil Engineer. On these accounts the Lieutenant Governor would propose the establishment at Roorkee of an institution for the education of Civil Engineers which should be under the direction of the Local Government in the Education department.

The proposal obtained the immediate and cordial support of the Governor General in India. On October 19, 1847, Lieutenant R. MacLagan of the Engineers* was appointed Principal of the College and on November 25 of the same year a prospectus was issued, the establishment being fixed at a Principal, a Headmaster, an Architectural Drawing Master and two Indian Teachers. The prospectus provided for three departments in the College. The First Department was for candidates for appointment as Sub-Assistant Civil Engineers. It was laid down that they must be under 22 years of age, must be able to read and write English easily and must have a knowledge of Geometry, Algebra, Mensuration, Plane and Spherical Trigonometry, Conic Sections, and Mechanics. The number to be admitted was 8 annually. The Second Department was for European Non-commissioned Officers and

*Father of Sir Edward MacLagan, late Governor of the Punjab

Rs 35,000 In Dehra Dun, Rohilkhand and near Delhi, works for drainage and irrigation were maintained requiring skilful superintendence The roads from Jubbulpur to Mirzapur, the grand trunk roads from Calcutta to Delhi and from Agra to Bombay and the Land Revenue Settlement Survey had been completed It was apparent that there existed a large demand for skill in every branch of Civil Engineering To meet this demand there were officers of the Army, European non commissioned officers and soldiers and Indians To make these men efficient agents, the well educated Europeans, lately arrived in the country, required instruction in Indian languages and in the peculiarities of materials and construction in India The European soldiers required scientific instruction and the Indians, from their local experience and ability to bear exposure to the climate, were likely to prove efficient instruments if they were well taught and inspired with a proper sense of responsibility

As early as the year 1845, Lieutenant Baird Smith of the Bengal Engineers, then Superintendent of the Eastern Jumna Canal, began training young Indians at Saharanpur in Civil Engineering for the grade of Sub Assistant Executive Engineer and in 1846 twenty candidates were admitted to this class In 1847, after the First Punjab War, Lord Hardinge, the Governor-General, determined on the vigorous prosecution of the Ganges Canal scheme This undertaking, especially in the first few miles of its course, was beset with great engineering difficulties Evidently it would tax to the utmost the skill, industry and resources of the people and country The science that was necessary to construct a work of this magnitude would also be kept constantly in exercise for its maintenance, improvement and extension Immediate measures were necessary to provide a constant supply of well trained and experienced Engineers Out of this emergency, the Roorkee College arose, later to be known as the Thomason College

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*Father of Sir Edward Maclagan, late Governor of the Punjab

soldiers who had to pass an elementary test in Reading, Writing, simple Drawing and very easy Mathematics before admission. The number of admissions was limited to 10 annually. These soldiers were trained to become Overseers in the Public Works Department. The Third Department was for young Indians desiring free instruction in Surveying, Levelling and Drawing. These men were required to have some knowledge of Arithmetic and to be able to read and write Urdu. Admissions were limited to 16 annually and qualified men were given certificates on leaving the College. Annual examinations were held for all classes. It will be noticed that the lengths of the courses were not specified, but it is believed that the Second Department course lasted 6 months only.

When Lieutenant R. MacLagan was appointed Principal in October 1847, not only were there no students, but there was no College. The first students were admitted on January 1, 1848 by the transfer of a few young Indians, who were being instructed by Major W. E. Baker of the Bengal Engineers, then Director of the Ganges Canal. These men apparently joined the Third Department. By August 1848, ten non-commissioned officers and soldiers had joined the Second Department, which was then complete, but meanwhile, as no building was available, work was carried on in tents. A very small building, the forerunner of the present Thomason College, was built for use during the hot weather of 1848 and was demolished later, when better accommodation was provided in the new College buildings. This little building contained two classrooms (26' x 32'), a Principal's Office 20 x 23', a hall of the same size and four small verandah corner rooms (16' x 12') for the Headmaster, Drawing Master, Book Depot, and Store, with verandahs on all sides. A plan of this miniature College—known then as the Roorkee College—hangs in the Thomason College corridor. The site of the building is unknown, but

presumably it was near the site of the existing College, possibly where the Principal's residence now stands. Instructional work was interrupted, in the winter of 1848-49, by the Second Punjab War, when Lieutenant MacLagan and the military students were absent on service for about two months, or, as it was tersely put "Marched for the frontier."

The year 1848 was an important one in the history of Roorkee. In this year, 12 years after the first line of the Ganges Canal levels had been taken, Lord Hardinge, then Governor General, recommended the commencement of work on the Canal scheme with the utmost vigour and the Ganges Canal may be said to originate from that time. The Canal Foundry Workshops were also established at Roorkee by Major Allen of the Bengal Army in that year and students of the Roorkee College attended there for practical instruction. In 1850, the number of Military students admitted to the College was increased to 15 annually and on April 7, 1851, there were 50 students of all classes. Forty-two men had already passed out.

The year 1851 really marks the birth of the Thomason College as it now is. At the end of the Second Punjab War the Roorkee College, with its then existing establishment and accommodation, was barely adequate for the instruction of the students and was utterly inadequate to meet the exigencies of the occasion. Mr. Thomason at once grasped the situation and prepared a scheme for enlargement.

This scheme provided for —

- 1st—The admission of officers both of the Royal and East India Company's armies, to study at Roorkee in a class called the Senior Department.
- 2nd—The superintendence and improvement of the village schools around Roorkee as feeders for the Third or Indian Department of the College.

- 3rd—The establishment, in connexion with the College, of a Depot for Mathematical and Scientific instruments and of a workshop for their repair and manufacture
- 4th—The formation of a Museum of Economic Geology
- 5th—The erection of an Observatory for instruction
- 6th—The maintenance of metal and stone printing presses with a book binder's establishment and all the necessaries for the publication of scientific works with appropriate drawings and illustrations
- 7th—The enlargement of the College buildings and establishment to meet all these purposes
- 8th—The doubling of the number of students in the Second and Third Departments

The original cost of the College buildings, etc., was estimated at Rs 1 56 217 and the annual charge for the College at Rs 83 898

A valuable record of the origin of the Thomason College and the aims and objects for which it was established, is to be found in a pamphlet, dated October 3 1851, drawn up by Mr Thomason Lieutenant Governor of the North-West Provinces. The exact date of the commencement of the construction of the new College—afterwards called the Thomason College—is unknown but it seems that the work must have been started in 1852. The officer who designed the main building was Lieutenant Price of the 1st Fusiliers, then employed on the Ganges Canal, who later became Chief Engineer, Hyderabad. There is reason to believe that Lieutenant Price also supervised the work of construction, *vide* Frontispiece, Volume III, of Colonel Cautley's Report on the Ganges Canal. It is very remarkable that a junior Infantry Officer should have been capable of designing and building so large an edifice

as the Thomason College and producing an example of Renaissance architecture which seems to be not unpleasing even to the eyes of professional architects, who have visited Roorkee in modern times. The officers responsible for the selection and acquisition of the site for the Thomason College and its estate showed wonderful judgment and foresight. They acquired in time 365 acres of land, including the high ground on which the College itself was built facing the north, in which direction the main range of the Himalayas towers in snowy grandeur above the nearer hills and lesser ranges. The land was fertile, the water-supply ample and the locality healthy, while, within a mile or two some of the greatest engineering works in the world were in the process of construction. It is recorded that the construction of the College was nearing completion in 1854 and that all the original buildings including the main building, were completed in January, 1856, so that a period of about four years was required for the work. The front of the main building, viewed from the north was as it is at the present day except that there was no clock, but there were no rooms where the present Library and Convocation Hall exist—only covered passages—and the rear of the quadrangle was open except for a small model room and museum block in the centre. As time went on the College was enlarged. By 1873, the Library and Convocation Hall had been built and by 1896, the rear of the College had been closed by providing rooms for Science Departments, while still later a second storey was added over the south-east corner to accommodate the Photo School of the College Press. Nevertheless it can be said that the Thomason College was completed, as then required in January, 1856, though the site had not the beautiful trees which now provide welcome shade around its lawns and gardens.

Until the year 1854, the institution at Roorkee continued to be known as the "Roorkee College," but in that year the

Honourable Court of Directors instituted a scholarship to be called the Thomason Scholarship, in memory of Mr. Thomason and the Governor-General ordered the Roorkee College to be called the "Thomason College of Civil Engineering" in the following notification —

No 6
OUR GOVERNOR GENERAL OF INDIA
IN COUNCIL
PUBLIC DEPARTMENT
London February 8 1854

- 1 We entirely concur in the opinion you express that it becomes the Government of India to institute some enduring memorial of the eminent merits and services of Mr Thomason and we think that the object cannot be accomplished in a more appropriate manner than by connecting it with the

Letter, dated November 4, No 80 of 1853 submitting for Court's sanction a proposal for the foundation of a scholarship or prize at the Roorkee College, in memory of the late Mr Thomason

College of Civil Engineering at Roorkee

- 2 We approve the proposal you have submitted to us and authorize you to carry it out in such a way as may seem to you most suitable. At the same time we are of the opinion that the opportunity should be taken of marking our sense of Mr Thomason's public services and of connecting his memory with Roorkee College in a still more emphatic manner. It appears to us very fitting that an institution of such peculiar importance to India and of a character so entirely novel in that country should bear the name of its founder and it is accordingly our desire that *the College be henceforth designated the "Thomason College of Civil Engineering at Roorkee"*

- 3 We direct that this change of name and the reasons for it, be publicly notified in such form as you deem most suitable

We are etc.,
(Sd) RUSSELL ELLICE,
J OLIPHANT,
and other Directors

In 1856, when the Thomason College had been built, a Committee was appointed by the Lieut Governor to inquire into the past working and present condition of the College and to prepare a scheme for its extension to meet the demands of the Services. The recommendations of this Committee, most of which were approved in November, 1857 were not put into force at that time owing to the disorganization caused by the Indian Mutiny, but the more important alterations were carried out during the next year or two. These were as follows —

1 A fixed date was introduced for admission to the Senior Department (Commissioned Officers) and the number for this department was fixed at 16

2 First Department —The non stipendiary students were now styled the *English Class* and their number fixed at 10. A general educational test was prescribed in addition to the mathematical test at the entrance examination. The stipendiary students were termed the *Native Class* and an entrance test similar to that for the English Class was exacted. Students of the First and Senior departments were eligible for appointment as Probationary Assistant Engineers.

3 Second Department —*Military Class* —The number of students was fixed at 30. The course however was only for one year against two in the other departments.

Non Military Class —No alterations were proposed for this Class, but Indian students were now admitted.

4 Third Department —*Vernacular* —Various alterations in the syllabus and the requirement of a knowledge of English were prescribed for this department.

5 An evening class for Indian workmen in Drawing, Geometry and Estimating was started.

6 A Professor of Surveying was added to the staff who was made Curator of the Instrument Depot also a Professor of Practical Chemistry and Photography.

7 A College Museum was started, with models from England

8 An Observatory was sanctioned

9 A Gymnasium was sanctioned but was not provided till later

10 A soldiers' garden and the grounds generally were laid out and improved

11 The Press was reorganized and enlarged

12 The young officers and non-commissioned officers and privates of the Sappers stationed at Roorkee, were required to attend the College as far as their duties would admit

Colonel R MacLagan R E the first Principal, retired in 1860 being succeeded by Captain E C S Williams, R E, who in turn was succeeded by Major J G Medley, R E, in 1863. The latter held the post of Principal till 1870. For a few years there were no great changes but the College was expanding steadily. In 1863, when the number of students had risen to 88 a Professor of Experimental Science was appointed. In 1864 the College was affiliated (nominally) to the Calcutta University. The course for the Senior and First Departments was extended to three years, unless a higher certificate was gained in two years. Eight students were guaranteed appointments as Assistant Engineers and practically all officers from the Senior Department obtained employment. Second Department students still remained only one year in the College and passed into the Public Works Department, Military students as 1st Grade English Civilians as 1st or 2nd Grade and Indians as 3rd Grade. In 1866 a Military Class was formed and also an Officers' Surveying Class for a 7 months' course in Military Surveying Drawing and Field Engineering. In 1868 an Indian Military Class (3rd Department) joined the College for a 2 years' course. The names of the various classes were altered in 1870 by which time there were 231 students. The Senior Department became the

"*Engineer Class*" (Military and Civil), while the Second Department became the "*Upper Subordinate Class*," and the Third Department the "*Lower Subordinate Class*." By 1870, the Staff had greatly increased and consisted of a Principal, two Assistant Principals a Professor of Experimental Science and a Professor of Drawing. These officers were assisted by a staff of masters for the Upper Subordinate Class under a Head Master and another staff for the Lower Subordinate Class. The increase in the number of students and in the strength of the staff, between the years 1863 and 1870 was remarkable. By 1870, the Thomason College had become a large and important institution, but very few Indians of good education entered it, indeed between 1847 and 1873 only 17 Indians passed out from the Engineer Class or its equivalent the remainder being Europeans.

Major A. M. Lang R. E. replaced Colonel J. G. Medley R. E., as Principal in 1871 and in the following year the Upper Subordinate Class course—up to then lasting one year only—was extended to two years. In 1873 the Central Instrument Depot located in the College was transferred to the Canal Foundry and Workshops and a new Class for instruction of men of the Guides Corps in Surveying and Drawing was started. About the year 1873 it became apparent that at last the more highly educated Indians had begun to realize the advantages of the Engineer Class in which they could obtain an excellent education *gratis* with the chance of a provision for life in a well paid and honourable profession. This is shown by the fact that between 1873 and 1875 sixteen Indians passed out of the Civil Engineer Class.

The history of the College since its establishment may be said to be divided into four periods and the year 1875 marked the close of the first period. The chief characteristic of this period was the pecuniary aid given by the Government to most students in the way of stipends. It was an era of pioneering

in an untrodden country and Government had to bear the cost of the journey. But it was also a period of great industrial development and of great activity in the construction of rail ways, canals, roads and other aids to industrial enterprise. The public mind was opening to the benefits of public works and to the advantages of Engineering as a profession. The result was that in 1875 Government found it possible to restrict the financial help previously given to students and to limit the number of guaranteed appointments to the Public Service. The years 1875 to 1896 may be termed the second period. During these years though the pecuniary aid given to students was to a large extent done away with most of them paid practically nothing for their education. The training, however, was confined chiefly to Civil Engineering, Surveying and allied branches and technical or industrial classes did not exist. The years 1896 to 1920 may be called the third period when all students, except soldiers, paid fees, and the College was developed greatly as a Technical Institute, much stress being laid on Industries and Science. From the year 1920 to modern times may be considered as the fourth period when the College reverted once more to the specialized training of Civil Engineers and subordinates, relinquishing Industrial and Mechanical and Electrical classes, which were found to interfere with the more advanced training in Civil Engineering necessitated by modern conditions and were unsatisfactory in a non Industrial centre such as Roorkee.

The Royal Indian Engineering College at Cooper's Hill in England, which opened in 1871 and closed in 1906, had an unfortunate effect on the entry of students to the Engineer Class at Roorkee after 1876. While 55 admissions to this class were made in 1876, only twenty were made in 1878, but the effect of Cooper's Hill College decreased later when more Indians appeared as candidates for entry. An entrance examination fee of Rs 20 was required for the first time in 1876.

In 1878, Major A M Brandreth, R E , succeeded Colonel A M Lang, R.E , as Principal In 1881 the Guides Corps Class was thrown open to the whole Indian Army and was called the Native Military Survey Class In this year also, for the first time, marks were allotted for physical fitness and for proficiency in athletics From the commencement of 1882 the entire financial responsibility for the College was thrown on the Local Government Under orders of the Secretary of State no Europeans, except Royal Engineers, were to be appointed as engineers in India, except under his sanction, it being understood that Cooper's Hill College was to be the source whence they were to be recruited Indians of pure Asiatic descent were to be given all vacancies in the Public Works Department irrespective of the position they held after the final examination European competitors only receiving under special sanction appointments for which Indians were unable to qualify This provision was altered in 1886 when guaranteed appointments were thrown open to all Statutory Natives of India The Professorship of Experimental Science was abolished and considerable reductions made in the staff due probably to an anticipated permanent reduction in the number of Engineer Class students

Few events of importance seem to have occurred in the Thomason College between the years 1882 and 1894, except the abolition of the Military Section of the Lower Subordinate Class in 1885 the starting of a British Military Survey Class in 1888 and some changes in the Staff Colonel A M Brandreth, R E retired in 1891 being succeeded as Principal by Colonel F D M Brown, V C of the Indian Staff Corps, but the latter officer vacated in 1892 when Major J Clibborn became Principal The year 1894 however, is notable for the fact that in that year the last men for many years passed out of the *Engineer Class into the Imperial Service* The Provincial Service was formed and the

Thomason College having been a provincial institution since 1882, all men from the Engineer Class entered the Provincial Service from 1894. This must have affected the entry to the College. In 1895, educational qualifying tests were introduced for permission to sit for the entrance examinations.

In 1896 commenced the third period in the history of the College. The Lieutenant-Governor of the North-West Provinces visited the institution. The College was reorganized and from this time forward all students, except soldiers, paid fees for their education. This further extension of the commercial principle, far from injuriously affecting the College, added to its efficiency and activity. The number of applicants for admission exceeded the number who could be accommodated and it became necessary to insist on a process of selection, whereby only those who stood highest in the competitive examination could be admitted. From this time forth the College did not alone concern itself with the education of engineers and their subordinates: its scope was extended so as to include Industrial and Technical education generally, *the aim being to develop the College into a Technical Institute for the Provinces*, which should control, stimulate and inspire technical teaching of all kinds.

The main points of this reorganization were:—

Firstly.—The transfer of the administration of the College from the control of the Public Works Department to that of the Education Department—thus emphasizing the fact that the College was not only intended as a nursery for the Public Works Department, but also to supply the need for Technical education for the Provinces in general.

Secondly.—The extension of the course of students in the Engineer Class from two to three years, in addition to an apprentice year in the Public Works Department as Engineer students before they were appointed Assistant Engineers. These, however, were not the only points of interest in the

reorganization scheme. An era of great activity and expansion was inaugurated. A Committee of Management was appointed and the College was affiliated to the Allahabad University. The first revised entrance examination, applicable to both English and Indian students was held. A class was formed for Mechanical Apprentices, having a three year practical course in the Workshops combined with theoretical education. An Industrial Class was started, this had also a three-year course, divided into 15 sections including Press work, Photography, Photo Mechanical Processes and Art Handicrafts. Students could take up one or more of these sections according to their capabilities. The affiliation to the Allahabad University, though nominally effected, was never actually completed and in time it died a natural death as did the affiliation to Calcutta University in 1864. It is evident that the development of the College into a Technical Institute was started with the greatest vigour under the control of the Education Department. The Thomason College became an educational institute under that Department and all important matters had to be referred to the Committee of Management, which became later the Advisory Council. In 1896, a clock was presented by H. E. Sir Bir Shumsher Jung, K. C. S. I., at a cost of Rs. 2,500 and placed on the College dome.

The next few years showed the progress of the College as a Technical Institute. The Technical and Scientific side was greatly strengthened, while the Civil Engineering side seems to have remained as before. In 1897 two Professors, two Instructors and a Demonstrator were appointed to the Staff viz., a Professor of Mathematics (Mr. Tipple) and of Experimental Science (Mr. Sedgwick), an Instructor in Applied Science, a Technical Instructor and a Laboratory Demonstrator. A Chemical Laboratory was started. New Technical Workshops were sanctioned. In 1899 an Electrical Engineering Class was started. In 1901 the new Technical Workshops

equipped with the latest machinery run by electricity, were built at a cost of Rs 33 000. The Applied Science Laboratories were fully equipped. A Physical and Mechanical Laboratory was provided. The College Press was enlarged and remodelled and an electrically operated water-supply system for the whole College was installed. Before the completion of all these alterations and additions which were necessary to carry out the details of the reorganization scheme of 1896, Colonel J Chibborn, C I E , I S C , went on furlough pending retirement in 1901 and his duties as Principal were taken over by Captain E H deV Atkinson, R E , who remained Principal from 1902 to 1915 when he left the College (as Lieut Colonel Atkinson, C I E R E) to proceed on active service during the Great War. A Council was created in 1901 to assist the Principal in regulating the courses of study and other matters which were recognized as outside the province of the Committee of Management. A sub-committee of this Council, now called the *Board of Studies*, still performs these duties, though the Council itself has ceased to exist. The enlargement of the Thomason College between the years 1896 and 1900 may be judged by the facts that the number of classes increased from 8 to 25, the number of students from 185 to 324, the fees from Rs 4,121 to Rs 16,784 and yet the yearly cost of the entire management fell from Rs 1,48 261 to Rs 1,32,064. These facts were pointed out by Sir A P MacDonnell, Lieutenant Governor, in a speech delivered at Roorkee on November 6, 1900, when he added that it was the object of Government to develop the Thomason College into a Technical Institute for the North West Provinces and Oudh, which should control, stimulate and inspire technical teaching of all kinds. Experience, however, showed later that advanced technical instruction was not easy at Roorkee and could not be given there except at the expense of higher civil engineering instruction. The

Thomason College, with its 25 classes, was becoming very complicated, though such expansion may have been expedient under the industrial and technical conditions then obtaining

Captain Atkinson, R E , in 1902, set about the reorganization of the interior economy of the College. Fortnightly examinations—a trial both to the staff and students—were abolished. The session was for the first time divided into three terms and the examinations grouped together at the end of each term. A new time table was introduced and the allotment of marks re arranged. The length of each attendance, which had so far been invariably 3 hours, was changed to $1\frac{1}{2}$ hours, except for certain subjects such as Laboratory work and Drawing. The arrangement of the staff was altered. Each branch of study was placed under a Professor with assistants who were responsible for the teaching of that branch throughout the College. A Dairy was started in connexion with the College stores which had been founded by the staff and students. In July the College was visited by the Lieutenant Governor, Sir Digges LaTouche, and as a result of his inspection a number of much needed buildings were sanctioned. In the early part of 1903, most of these buildings were completed. They included a building for the stores and dairy, a bazar, a central power house, improvements to the quarters, new latrines, the completion of the system of drainage and a house for the Applied Science Instructor. A grant of Rs 24 000 was sanctioned to be spread over four years for bringing the supply of surveying instruments in the College up to date. In 1904 further improvements in interior economy were made. The syllabuses for all the classes were revised and brought up to date. The list of text books in use was revised and recent and more approved methods of instruction in Geometry and Mechanics introduced. A start was made to equip a Mechanical Laboratory for the practical teaching of Mechanics. Instead of specified text books for

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On April 8, 1905, H. E. the Viceroy, Lord Curzon, inspected the Thomason College and on March 7, 1906, the College was greatly honoured by a brief visit from Her Royal Highness the Princess of Wales (now Her Majesty Queen Mary), who afterwards presented portraits of H. R. H. the Prince of Wales and herself to the College. The Lieutenant Governor—Sir J. J. D. LaTouche—visited the College during 1905. A Professor of Surveying and Drawing and a Demonstrator in Chemistry were added to the staff in 1905 and Mr A. M. McLean joined the staff as an Instructor in Mechanical Engineering in 1906. In the year 1907, a large scheme for the further development of the College as a Technical Institute was sanctioned. The Lieutenant-Governor at that time—Sir John Hewett—was greatly interested in industrial and technical education. An electric light, fan and

telephone system was installed in the College main building, the Workshops and the Principal's residence. New engines of ample power were laid down. A Technical Class was started and the Mechanical Apprentice Class enlarged. To meet these increases additional hostel accommodation was built, the workshops doubled in size, new classrooms built, additional staff entertained, a new water supply inaugurated and last, but not least, new laboratories for the College sanctioned at a cost of Rs 94,000. In the following year (1908), the buildings sanctioned in the expansion scheme were practically finished and the new engines and water-works installed. An Automobile Driver Class was started and good progress was made at first in training drivers. The Calcott-Reilly Memorial Fund from the late Cooper's Hill College was handed over to the College to be given for Applied Mechanics in the Civil Engineer Class. Mr C J Veale joined the College Staff in 1908 as Professor of Surveying and Drawing. The new accommodation for the Photo-Mechanical Department (the College Press) was completed in 1909 and in this year the late expansion of the Professorial staff necessitated a scheme to provide new and better staff bungalows. A site in the vicinity of Malikpur village was acquired and the village removed to Khanjarpur. Mr P P Phillips, who was appointed on five years' contract was taken into the Indian Educational Service. In October, 1909, His Honour the Lieutenant-Governor, Sir John Hewett, visited the College and opened the new laboratories additions to workshops and the electrical and power installations and a new double storeyed hostel. A sub-committee of the College Council was formed into a *Board of Studies* to advise on all matters connected with courses, examinations and time tables. In 1910 the Technical Class was abolished and arrangements made to form a Department of Technology. Major H B D Campbell, R E (Assistant Military Principal) left the College in which he

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employment in India Mr. E. S. Griffith, an Instructor, obtained an I A R O commission in May, 1917 and Mr. G. Lacey, who joined the College as Professor of Civil Engineering in November, 1915, also obtained a commission in 1917 and both left the College. Many European students, who had passed out of the College, received commissions, and the names of those students killed in the War appear on a brass memorial tablet in the College. It is evident that the War took a heavy toll of the College Staff and instruction became increasingly difficult. Funds were also scarce, so that any large expansions had to be postponed till better times. Nevertheless the instructional work continued. The Public Works Department assisted the College by recommending the appointment as Principal of Mr. W. Gunnell Wood C S I, late Chief Engineer Buildings and Roads Branch, United Provinces, and this appointment was made in October, 1916. Sir James Meston, Lieut.-Governor, visited the College in February, 1916.

The Public Works Reorganization Committee visited the Thomason College in 1917 and in July of that year His Honour the Lieut. Governor of the United Provinces, Sir James Meston, presided at the Annual Convocation. The Indian Defence Force came into existence, replacing the Mussoorie Volunteer Rifles, and all British subjects in the College were enrolled in the new formation. Admissions to the Textile Class ceased in 1918, but the class was not transferred finally to Cawnpore till January, 1920. The declaration of the Armistice was duly celebrated in November, 1918 and the College settled down to consolidate its position in the difficult times which succeeded the War, when political unrest in certain districts and lack of funds for new schemes rendered the task of Government no easy one. Mr. E. F. Tipple, Professor of Mathematics, vacated his post in April, 1919, after

22 years service at the College during which he twice officiated as Principal. In February 1920 Major E W C Sandes, D S O M C R E re joined the College Staff from leave after the War as a Professor of Civil Engineering and subsequently officiated as Principal for several months during the absence on leave of Mr W G Wood, C S I. During 1920 and 1921 the College suffered heavily through the deaths of Mr F W Sedgwick Professor of Electrical Engineering and Physics who had served on the College Staff for 23 years and Sub-Conductor G E Lansley, Personal Assistant to the Principal, on March 22 1920 and October 6 1921 respectively. Mr W L Stampe I S E, was appointed as a second Professor of Civil Engineering in November 1920 and Mr J M Salusbury Trelawny as a third Professor in October, 1921. There were many changes in the superior staff at this time due to the altered conditions after the close of the War and the retirement of officers who had carried on the work ably during the War.

It is not proposed in this history to deal with changes of staff other than professorial staff, except in unique cases and as regards professors merely to mention the times of their first appointments and dates on which they vacated their posts finally. Officiating appointments and those owing to leave vacancies are too numerous and would make the history unwieldy. Reference to the Annual Report at the end of the Calendar of any year will show in detail the changes in the staff during that year. For easy reference a list of Principals follows this History in the Calendar and also a list of Convocation Presidents i.e., officers who presided at the Annual Convocations and Prize givings. A further list of very distinguished visitors is added. Many other senior officials have also visited and continue to visit the College, the Annual Report of each year shows their names, and, needless to say, the College welcomes such indications of their interest in it.

A complete Reorganization Scheme for the Staff of the Thomason College, dated July 12, 1919, was drawn up in that year by the Committee of Management of the College to suit the new requirements of Government under the Reforms Scheme and the new policy laid down for the future of the College and it was duly submitted to the Secretary of State. The scheme was necessitated by the proposal to close down certain classes in the College as mentioned hereafter. The Committee of Management proposed certain modifications of the original scheme in May, 1920 and final sanction to the amended scheme was accorded by the Secretary of State on January 29, 1922. After 1920, admissions to the Upper Subordinate Lower Subordinate Industrial Apprentice and Mechanical and Electrical Engineer Classes ceased. It had been decided finally that the training of Mechanical and Electrical specialist students and Industrial and Technical students was not suited to Roorkee and this decision marked the end of the scheme to develop the Thomason College as a Technical Institute. The cessation of recruitment to the Upper and Lower Subordinate Classes and the consequent disappearance of the last students of these classes in July, 1922, was brought about by changes in the organization of the Public Works Department under which many sub-divisions were to be in the charge of Assistant Engineers (Provincial Service) instead of Upper Subordinates. This scheme made it advisable to train sub-overseers to a standard higher than the Lower Subordinate Class recruits for the new Subordinate Engineering Service. Hence, when the Upper Subordinate and Lower Subordinate Classes were to be abolished in the College, a scheme was prepared to replace them by a new Overseer Class of intermediate standard. The new Overseer Class was approved and the first students were admitted in October, 1922, for a 3 years' course, 10 vacancies being offered annually for com-

petition This 3 years' course was later reduced to 2 years The former Lower Subordinate Class Staff was transferred to the Overseer Class but later the instruction was supervised and assisted also by the Lecturers of the Civil Engineer Class It was originally intended that the Overseer Class should be located at Roorkee only until buildings were ready at Lucknow to accommodate it The last students of the Mechanical and Electrical Engineer Class and the Industrial Apprentice Class passed out of the College in July, 1923, but a class for Drafts men was retained and still exists A batch of 20 Military students was admitted to the College in January, 1922, as a special case, to meet the requirements of the Military Engineer Services (old M W S) for a short course of training approximating to that of the abolished Upper Subordinate Class with due regard to the shorter duration This batch left the College in July, 1923 A second batch of ten Military students only was admitted in October, 1922 and passed out in July, 1924 and with that batch the class ceased to exist in the Thomason College and all College students up to July, 1935 have been civilians Since October, 1935 3 Indian Military Academy Gentlemen Cadets are to be admitted to the Civil Engineer class annually after they have passed the entrance examination to undergo a course of post graduate training corresponding to that of Cambridge with a view to their obtaining Commissions in the Indian Engineers

In the year 1921, the College Committee of Management was replaced by an *Advisory Council*, constituted under G O No 1573/XV—312, dated July 10, 1920 The last meeting of the Committee of Management (45th) was held on July 9, 1920 and the first meeting of the Advisory Council on February 17, 1921 The Council was formed with 10 members as compared with 7 members constituting the Committee, but the number of members in the Council has since increased The status of the Thomason College was

improved owing to the Government of India offering to the Civil Engineer Class 10 or 9 vacancies in alternate years, in the Indian Service of Engineers as *guaranteed appointments*. This step, by which employment in the Imperial Service was again thrown open to highly qualified students, was a return to the practice in vogue up to 1894, when students could pass into that Service. The constitution of the Indian Defence Force was changed in 1921 to the Auxiliary Force (India) and the College detachment (Europeans) became a part of the Mussoorie Battalion, being organized as a Machine Gun Section. As increased accommodation for professors was required, one thatched bungalow, almost opposite the Royal Engineers' Mess, was replaced by a pukka building in 1920 and in 1921 the construction of a pukka bungalow was commenced opposite the Royal Engineers' Mess and another further east. In October 1921 Mr W G Wood, C S I, vacated the post of Principal and was succeeded by Major E W C Sandes D S O, M C R E.

His Excellency the Governor of the United Provinces Sir Harcourt Butler, K C S I, C I E, presided at the College Convocation and Prize giving in July, 1922. In this year a Committee was appointed by Government to inspect the College Press with a view to possible economies through the transfer of the control of the Press to the Superintendent of the Government Press Allahabad (then Mr Abel). Though the Committee recommended the transfer, the Advisory Council was averse to it and Government accepted the opinion of the Council. The two new bungalows for professors were completed in 1922 and funds were given for the transfer of the Textile (Cotton) Machinery to Cawnpore and the conversion of the Textile Building into an Annexe for the Overseer Class instruction. The benefits of the sanctioned Reorganization Scheme were felt in this year. All members of the instructional staff were allowed rent free quarters from October

1922 and salaries were improved. Mr H P Jordan, Professor of Mechanical Engineering then on leave was transferred to the Poona Engineering College in October, 1922. Mr Dhawan, Mr Raja Ram, Mr B D Puri, and Mr Shiv Narayan joined the Staff as Professors of Civil Engineering (Railways), Civil Engineering (Sanitary), Mathematics and Electrical Engineering and Physics respectively, also Mr Chuckerbutty as Assistant Professor of Surveying and Drawing. But Mr Shiv Narayan and Mr Chuckerbutty were transferred elsewhere after one session and the posts remained vacant and Mr Dhawan also left in October, 1923.

His Excellency Sir William Marris, K C S I , K C I E , who succeeded Sir Harcourt Butler as Governor, presided at the Convocation in July, 1923. This occasion was unique in that the Governor of the Punjab, His Excellency Sir Edward Maclagan, K C S I , C I E , was also present and distributed the prizes at the request of Sir William Marris. Sir Edward Maclagan had been invited in view of his connexion with the College through his father Colonel R. Maclagan, R E , who was the first Principal. A portrait of Colonel Maclagan, presented by His Excellency Sir Edward Maclagan in commemoration of his visit, hangs in the Convocation Hall. Mr C J Veale, Professor of Surveying and Drawing, officiated as Principal for a period of six months in 1923 (including the College vacation), in the absence of Major Sandes. In November, 1923, sanction was given to the formation of one Platoon of the 3rd (Allahabad) Battalion of the University Training Corps (Indian Territorial Force) at Roorkee, thus enabling the Indian students to undergo military training for the first time. Applications for enrolment far exceeded the vacancies and there was great keenness. Unfortunately the strength of one Platoon did not allow of the actual enrolment of more than one half of the Civil Engineer Class students but the remainder received military drill instruction. The

Overseer Class students continued to receive instruction in physical drill

Major General Sir Edwin Atkinson, K B E , C B , C M G , C I E , Master General of Supply and a former Principal of the College, presided at the Convocation in July, 1924 During this year the grant for repairs was increased and much necessary and overdue work was carried out, including re roofing the College bazaar buildings and the completion of new out buildings and the re roofing of servants' quarters Dr P P_h Phillips, on return from leave, officiated as Principal from October 1923 till the return from leave of Major E W C Sandes in October 1924 A Special Committee was assembled by Government at Roorkee in December, 1924 to investigate certain matters connected with the syllabi, courses of study and staff of the College, arising out of the introduction of the Reorganization Scheme of 1919 A very comprehensive report was submitted by this committee in 1925, which was subsequently dealt with, item by item by the Advisory Council, whose recommendations caused Government to sanction several useful alterations and innovations in the College courses Mr A C Verrieres, C I E , Chief Engineer, Buildings and Roads Branch, Public Works Department United Provinces an old student of the College presided at the Convocation in July, 1925, this being the first instance of a past student performing this duty An extension of the Indian Engineer Class Club was put in hand and also several internal alterations in the College itself and in hostels, and re roofing of certain bungalows with jack arches A very fine steel model of a plate girder bridge span, on a large scale was presented to the College by Messrs Burn & Co Howrah, and installed in one of the College model rooms which have been developed into useful instructional departments Mr R A Bridshaw Smith, I S E , joined the Staff as Professor of Civil Engineering (Irrigation), in February,

1925, Mr. L. E. Dawson having acted temporarily since Mr. W. L. Stampe vacated the post in October, 1924.

The President at the College Convocation in July, 1926, was His Excellency Sir Malcolm Hailey, K. C. S. I., C. I. E., Governor of the Punjab. He was invited to preside because the Punjab had of late years, been so largely represented in the College. Indeed the Punjab candidates for the Civil Engineer Class had become as numerous as those from the United Provinces, the Punjab paying the expenses of the training of every such candidate who gained admission, though admissions were limited. The Board of Studies, in 1926, formulated proposals for the improvement of the Overseer Class course and instruction. A grant was given by Government for the purchase of additional plant for the College Workshops, which lacked modern generating machinery. Two vestibules, one classroom and three offices were re-roofed in the main College building and also certain servants' quarters and small out-houses. Another lecturer's bungalow was re-roofed with jack arches.

The Convocation President in July, 1927, was Mr. (now Sir) B. D. O. Darley, C. I. E., I. S. E., Chief Engineer, Sarda Canal, and Secretary to Government, United Provinces, Public Works Department, Irrigation Branch. Mr. Salig Ram, I. S. E., an old student, joined the Staff in June 1927, as Professor of Civil Engineering. The College was grieved to learn of the death of a distinguished past student, Sir Ganga Ram. During the summer a new flagstaff was erected in front of the College.

This brief history having now been written up to the end of the College Session of 1926-27—a period of 80 years since the foundation of the Thomason College in 1847—it may be well to continue it year by year in the form of a *Sessional Diary* including the *preceding* vacation, &c., by yearly periods from July 15 to July 15, and this system will henceforth

be adopted. It should be realized that all facts and events cannot be recorded in the History, but only those of importance.

Session 1927-28 — A great event in the Session 1927-28 was the visit of His Excellency the Viceroy, Baron Irwin of Kirby Underdale, G M S.I., G M I U., to the Thomason College on April 11, 1928. His Excellency and Staff de-trained in the early morning, motored round the College estate and then visited the Workshops and inspected the College and later inspected also the College Press before departing by motor for Dehra Dun. His Excellency inspected a Guard of Honour of the College students and was photographed with the staff, students and visitors. He expressed himself much gratified with all he saw and presented a photograph to the Principal, an enlargement of which appears in the College Convocation hall. The honour of this visit was greatly appreciated by the College as a whole, and particularly since no Viceroy had visited the institution since Lord Curzon came in 1905. His Excellency the Viceroy was pleased to enter the following remarks in the College Visitors' Book:—

"It gave me great pleasure to visit the Thomason College to day and to see with my own eyes the institution which has turned out so many famous engineers. The equipment was obviously of a high standard and the curriculum appeared to me very comprehensive and wisely drawn for its purpose. I was greatly impressed by all I saw and by the many evidences of the way in which Colonel Sandes and his Staff are carrying on the work. I am very grateful to him for giving me so interesting and instructive a morning and to him as to the College Staff and its students, I can wish nothing better than that the College may maintain the high standard and tradition which is associated with its name."

Irwin"

The Principal, Lt.-Col. E. W. C. Sandes, D S O., M.C. R E., was placed on deputation for one month in November, 1927, with the Rangoon University to advise about the Engineering College at Rangoon and he proceeded to Burma for this purpose. The Civil Engineer Class students passing out

of the Thomason College in July 1928 were the first batch for many years to whom the Government of India guaranteed no appointments in the Indian Service of Engineers such guarantee having been withdrawn in the case of students entering in October 1925 and thereafter. The entrance examination to the Civil Engineer Class in June 1928 was also the first examination conducted under a revised syllabus of a higher standard than formerly with the approval of Government and the Advisory Council and stipulating also a higher qualifying standard than before for permission to sit for that examination viz the Intermediate or equivalent standard in place of the Matriculation or equivalent. It was anticipated that this raising of standards would cause a marked decrease in the number of candidates but such is the reputation of the Thomason College and the prospects offered to students that this was not the case. Indeed 203 candidates who were qualified under the new rules entered for the examination in June 1928 in competition for the usual 30 ordinary annual vacancies in the Civil Engineer Class. In the Overseer Class 236 candidates entered for 40 vacancies. During the summer of 1928 most of the College staff benefited by the recent completion by the Public Works Department of temporary lines on the College estate for the supply of electric current from Bahadarabad. Consumers made their own arrangements for temporary internal wiring and fittings pending permanent arrangements but were able to draw current on payment from the Public Works Department through the substation erected in 1927 on the College estate. The Students Mess and Club similarly benefited. The first P W D Power Installation at Bahadarabad was completed in 1913 and was arranged to supply alternating current to the Canal Headworks at Bhimgoda only the alternators being driven by turbines operated by canal water. In 1924-26 however the power station was greatly enlarged alternative plant was installed

and the electric supply given to Hardwar and adjacent places. A line was laid also to supply the whole of Roorkee, including the College, part of whose electric current now comes indirectly from its parent, the River Ganges. The new water-supply system for the College estate, however, could not be installed as funds were not available. A very large steel model road bridge of Baltimore Truss type, with overhead bracing, was received during 1927 from Messrs Burn and Co., Howrah, and placed in the bridge model room during the Session 1927-28, complete with framed diagrams and calculations. Most of the cost was generously met by the firm. The liquidation of the College Stores was completed. The staff and students of the College learnt with the deepest regret on June 17, 1928, that His Excellency the Governor of the United Provinces, Sir Alexander Muddiman, Kt., K.C.S.I., C.I.E., had died on that day. His Excellency had undertaken to preside at the Annual Convocation in July 1928. In consequence of this tragic event, Mr A. H. Mackenzie, C.I.E., Director of Public Instruction, United Provinces, presided at the Convocation and distributed the prizes and certificates. This function brought to a close a notable Session—the first since 1905 in which the College had been honoured by a visit from a Viceroy. A silver challenge cup to be awarded annually to the best student in Games and Sports, was donated to the College by the Principal Lieut Colonel E. W. C. Sandes and was presented to the first winner at the Convocation, together with a miniature cup. Another silver challenge cup was donated by Mr B. D. Puri, Professor of Mathematics for Squash Racquets Doubles, and a third cup by Mr J. Barnett, Personal Assistant to the Principal, for the Overseer Class in the Athletic Sports. These cups were also presented at the Convocation. A fourth silver cup, for an annual cross-country race, was promised by Mr R. A. Bradshaw-Smith, Professor of Civil Engineering on

leaving the College, when reverting to his Department in 1928

Session 1928-29 —The Hon ble Raja Bahadur Kushalpal Singh, the United Provinces Minister for Education presided at the Annual Convocation in July, 1929 Dr P P. Phillips officiated as Principal from May, 1929 until the end of the session in place of Colonel Sandes who was granted leave During the year funds were provided by Government for the installation of electric light in all the College residential quarters, a benefit which was appreciated by all concerned The separate department of Electrical Engineering and Physics was abolished and the instruction in Electrical Engineering transferred to the Mechanical and Electrical section at the Workshops Physics was combined with the work of the Chemistry Department, which henceforth will be known as the Department of Applied Science Lieut J S Gurney took charge of the post of Head Master, Overseer Class, from the beginning of the session

Session 1929-30 —Mr P H Tillard, I S E Chief Engineer, P W D, B & R Branch, U P, presided at the Annual Convocation in July 1930 Colonel Sandes proceeded on leave preparatory to retirement with effect from March 7 1930 and Mr P P Phillips was appointed to succeed him as officiating Principal in the first instance

Session 1930-31 —Mr A H Mackenzie, C I E, Director of Public Instruction United Provinces, visited Roorkee from April 8 to 10 and inspected the College Mr W. Roche, C I E, I S E, Chief Engineer, P W D, Irrigation Branch, U P, presided at the Annual Convocation The European students' mess of the Civil Engineer Class had to be closed owing to paucity of members, after having been in existence for 34 years Up to the last its members had a very fine record both in work and games.

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Session 1932 33 — Many of the changes ordered by the Government in accordance with the report of the Retrenchment Committee which met in Roorkee from November 12 to 14 1931 became operative with the start of this session

The departments in the Civil Engineering Course were reduced from 5 to 3 The Department of Applied Science was abolished Physics being added to the Department of Pure and Applied Mathematics and Chemistry, Geology and Mineralogy to the Department of Civil Engineering The Department of Survey and Drawing was amalgamated with the Department of Civil Engineering and its professorship reduced to an assistant professorship

The changes in the staff were —

- (i) Abolition of the post of Professor of Applied Science
- (ii) Abolition of one of the posts of Professor of Civil Engineering thereby reducing the number from 3 to 2
- (iii) Abolition of two posts of Instructors of the Overseer Class reducing the number from 5 to 2
- (iv) Abolition of one of the two posts of Lecturers in Mechanical Engineering
- (v) Abolition of the post of Superintendent of the College Office and combining this post to that of the Personal Assistant to the Principal

Further from the start of this session the Principal in addition to his ordinary duties became head of the Department of Civil Engineering and was called upon to lecture

Mr H J Amoore I S E became Principal from October 6 1932

Mr H T Cumming was appointed Assistant Professor of Survey and Drawing from the start of the session and Mr J Crawford ceased to be a lecturer in Mechanical

Session 1931-32 —The Retrenchment Committee, appointed by Government for the Thomason College presided over by the Hon'ble Mr J P Srivastava M Sc , A M S T , M L C Minister for Education, United Provinces, met in Roorkee from November 12 to 14, 1931 His Highness the Maharaja of Jaipur visited the College in January, 1932, and Major General Addison on July 6 1932

The Photo Mechanical and Litho Department and Book Dépôt ceased to be departments of the College with effect from March 1 1932 The course of instruction in photography was abolished and the last award of medals in photography was made at the convocation on July 14 1932

Dr P P Phillips Ph D F I C I E S , Principal was superannuated with effect from March 22, 1932, after serving the Thomason College for 28 years and Mr Raja Ram, Professor of Civil Engineering succeeded him as officiating Principal from that date

Mr Gerald Lacey, I S E , Professor of Civil Engineering, proceeded on leave with effect from April 21, 1932 and reverted to the Irrigation Branch United Provinces from October 17 1932 and Mr M L Garga Assistant Research Officer Irrigation Branch, officiated as Professor of Civil Engineering up to July 15 1932 in his place

Professor Gerald Lacey offered an annual prize of Rs 25 to be awarded to a Civil Engineer Class student for the best performances at the meetings of the Thomasonian Society during each session

Mr C J Veale, F R G S , F R A S , Professor of Surveying and Drawing retired on pension with effect from March 8 1932

Dr M A Hamud Ph D M Sc joined as Temporary Professor of Applied Science on October 22, 1931

Lieut Col C A Bird D S O , R E , presided at the annual convocation

Mr P S Bhatnagar officiated as lecturer in Drawing in his place from October 22 1934 to December 8, 1935

A special committee appointed by the Government to report on the revision of syllabus and course of study Civil Engineer class held its sitting in the College on January 6 and 7 1935

Sir Sita Ram President of the Legislative Council, paid a visit to the College on April 26, 1935

Session 1935 36 —Mr W M G Dawson, I S E , joined the Staff as Professor of Civil Engineering in the vacancy caused by Rai Bahadur Debi Datta Mal, I S E , reverting upon completion of his term of office to the Irrigation Department United Provinces

Mr W M G Dawson, I S E , proceeded on leave combined with the College vacation in March, 1936 and Mr K N Kathpalia I S E was appointed in his absence to deliver lectures in Hydraulics and Irrigation

In accordance with arrangements made by the Army Headquarters India with the Government of the United Provinces, Indian Commissioned Officers from the Indian Military Academy joined the Civil Engineering class of the College Three officers joined, 2nd Lieutenants A N Kashvap N S Bhagat and Anant Singh

Session 1936 37 —Messrs Mahabir Prasad, I S E , and W M G Dawson I S E , Professors of Civil Engineering reverted to their substantive appointments in the Public Works Department of the United Provinces, on March 15, 1937, and July 7, 1937, respectively

Major H Williams, R E , joined the Staff on October 8, 1936, being the officer deputed by Army Headquarters, Simla, to be in charge of the Indian Commissioned Officers under going a post graduate course in Civil Engineering and Professor of Civil Engineering

Engineering, becoming Headmaster of the Overseer Class from the same date relieving Mr H T Cumming

Rai Bahadur Debi Datta Mal, I S E , was appointed Professor of Civil Engineering, joining his appointment in February 1933, thereby relieving Mr M L Garga who reverted to his substantive appointment in the Irrigation Branch of the P W D , United Provinces

Raja Jwala Prasad retired Chief Engineer Irrigation Branch P W D U P presided at the Annual Convocation

Session 1933 34 —Major A M McLean, Assistant Professor of Mechanical and Electrical Engineering who joined the staff of this College in October, 1906 left in March, 1934 on leave preparatory to retirement Mr J Crawford Head Master Overseer Class officiated in his place in addition to his own duties

The Hon ble Sir J P Srivastava Kt , M Sc , M L C Minister for Education, United Provinces presided at the Annual Convocation

Session 1934 35 —Mr H J Amore Principal proceeded on leave out of India from March 15, 1935 Professor Mahabir Prasad who joined the College as Professor of Civil Engineering on the forenoon of December 7, 1934 officiated as Principal from March 15, 1935

Mr J Crawford continues to officiate as Assistant Professor Mechanical and Electrical Engineering

Mr P C Sen Gupta took over charge as officiating Headmaster Overseer Class on February 11 1935

Captain T Barnett proceeded on privilege leave from May 13 1935, for 2 months 25 days

Mr P L Sharma Lecturer in Drawing proceeded on leave out of India for 6 months 21 days in continuation of College vacation of 1934 from October 22 1934 but had to return earlier and resumed charge on December 8 1934

Mr R S Weir, Director of Public Instruction, United Provinces, visited the College in June, 1938

At the close of the session passed out the first three Indian Commissioned Officers, who joined the College in October, 1935 for a 3 years post graduate course in Civil Engineering

Sir William Stampé, K.T., C.I.E. very kindly presented a challenge cup for Inter-class athletic events. This was first awarded and won by the Civil Engineering class, 3rd year

Mr Puran Mal, retired Assistant Engineer Public Health Department, donated a sufficient sum to provide annually 2 silver medals one for the Civil Engineer class and one for the Overseer class. The medals to be known as the Puran Mal silver medals for Public Health Engineering. The medals to be awarded annually to those students who obtain the highest marks in the final examination on Sanitary Engineering and Water Supply. The medals were first awarded at the Convocation in July 1938

Session 1938-39—Mr H J Amore Principal proceeded on leave preparatory to retirement from May 5 1939 and Major C D Reed R.E. carried on his duties in addition to his own till July 15 1939 and made over charge to Mr E D Puri, Professor of Mathematics on July 16 1939

Major H Williams R.E. Professor of Civil Engineering and officer in charge of Indian Commissioned Officers reverted to Defence Department from November 7, 1938 and was succeeded by Major C D Reed R.E., who also reverted to Defence Department from July 16, 1939

Mr Raja Ram Professor of Civil Engineering resigned from May 8 1939

Mr Raja Ram on completion of his period of 3 years as Malarial Engineer with the Government of India resumed his post as Professor of Civil Engineering on July 10, 1937

Mr H T Cumming, Assistant Professor of Survey and Drawing, proceeded on leave combined with the 1937 College vacation on April 9, 1937

Mr J Crawford officiating Assistant Professor of Mechanical and Electrical Engineering, was confirmed in that post from March 28 1935

Major Barnett Personal Assistant to Principal and Superintendent of the College Office, was away on leave from November 4 24 1936

Mr M L Misra Lecturer in Electrical Engineering, was on leave on medical certificate from October 27, 1936 to February 20 1937

Lala Phumman Ram Instructor, Overseer Class, retired from service from January 4, 1937

Session 1937 38 — Mr Raja Ram, Professor of Sanitary Engineering proceeded on long leave on October 16, 1937 and rejoined on April 18 1938

Mr Romesh Chandra I F F, joined the staff as Professor of Civil Engineering on October 18 1937 and reverted to his substantive appointment upon completion of the session

Mr P Chakravarti Lecturer in Pure and Applied Mathematics, was on leave from April 13 1938 to May 11, 1938

The Hon ble Pandit Govind Ballabh Pant, B A, LL B Premier, United Provinces, visited the College on December 2, 1937 and addressed the students

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LIST OF PRINCIPALS.

Colonel R MacLagan, R E	1847—1852
Major Oldfield R E (Offg)	1852—1856
Colonel R MacLagan, R E	1856—1860
Captain C E S Williams R E	1860—1862
Colonel J G Medley R E	1863—1871
Colonel A M Lang R E	1871—1877
Colonel A M Brandreth R E	1877—1891
Colonel F D M Brown V C I S C	1891—1893
Lt-Col J Chibborn, C I E I S C	1892—1903
Lt Col E H deV Atkinson C I E, R E	1902—1915
W G Wood Esq, C S I	1916—1921
Lt Col E W C Sandes D S O, M C R E	1921—1931
Dr P P Phillips, P R D, F I C I T S	1931—1932
H J Amoores Esq I S E	1932—1939
Raj Bahadur Madan Gopal Sardana	1940—

Note—The ranks shown are those held on vacating the appointment. Officiating Principals are omitted from the list but many names appear in the Calendar of 1911 and the names of Mr F I Tyle Mr C J Veale Mr Raja Ram Major C D Reed J I Mr B D Lunn and F B M C I await may be added for recent years.



J. C. POWELL-PRICE, Esq , M A. (Cantab) , C.I.E., I.E S.,
Director of Public Instruction, United Provinces.

LIST OF CONVOCAATION PRESIDENTS

FROM 1890.

-
- 1890 The Hon ble Sir Auckland Colvin, K C M G , C I E ,
Lieut Governor, N -W P
- 1891 Mr T H Wickes, Chief Engineer, P W D , N -W P
- 1892 The Hon'ble Sir Auckland Colvin, K C M G , C I E ,
Lieut Governor, N -W P
- 1893 Mr A H Harrington, I C S , Commissioner, Meerut
Division
- 1894 Mr J G H Glass, C I E , Chief Engineer, P W D ,
N W P
- 1895 { Principal, Thomason College (Lt -Col J. Clibborn,
to { I S C)
- 1897 {
- 1898 Offg Principal, Thomason College (Lt H B D
Campbell, R E)
- 1899 / Principal, Thomason College (Lt -Col J Clibborn,
to { I S C)
- 1901 {
- 1902 His Honour Sir J J. D LaTouche, K C S I ,
Lieut -Governor, U P
- 1903 Principal, Thomason College (Major E H deV
Atkinson, R E)
- 1904 Lt Col A E Sandbach, R E , 1st Sappers and
Miners, Roorkee
- 1905 Lt -Col S V Thornton, R A , O C Station, Roorkee
- 1906 { Principal, Thomason College (Major E H deV
to { Atkinson, R E)
- 1909 }

- 1910 Mr. C E V Goument, Chief Engineer, P.W D ,
U P.
- 1911 }
to } Principal, Thomason College (Lieut -Colonel E H.
1915 } deV Atkinson, C I E , R E)
- 1916 Mr W Gunnell Wood, C S I , Chief Engineer,
P W D , U P
- 1917 His Honour Sir James Meston, K C S I , Lieut -
Governor, U P
- 1918 Mr F C Rose, M I C E , Secretary to the Govern-
ment of India, P W D
- 1919 Mr T R J Ward, C I E , M V O Inspector General
of Irrigation in India
- 1920 Colonel Sir S D'A. Crookshank, K C M G , C B ,
C I L , D S O M V O Secretary to the Gov-
ernment of India, P W D
- 1921 Mr St J Gebbie, C I E , Inspector General of
Irrigation in India
- 1922 His Excellency Sir Harcourt Butler, K C S I , C I E ,
Governor U P
- 1923 His Excellency Sir William Marris, K C S I ,
K C I E , Governor, U P
- 1924 Major General Sir E H deV Atkinson, K B E ,
C B , C M G , C I E , Master General of Supply
- 1925 Mr A C Verrières, C I E , Chief Engineer, P W D .
U P
- 1926 His Excellency Sir Malcolm Hailey K C S I , C I E ,
Governor Punjab
- 1927 Mr B D'O Darley, C I L , Chief Engineer, Sarda
Canal U P
- 1928 Mr A H Mackenzie, C I E , Director of Public In-
struction, U P

- 1929 The Hon ble Raja Bahadur Kushalpal Singh, M A ,
LL B , Minister for Education, U P
- 1930 Mr P H Tillard Chief Engineer P W D U P
- 1931 Mr W Roche C I E I S E Chief Engineer,
P W D Irrigation Branch Western Canals
U P
- 1932 Lieut Col C A Bird D S O R E O C Station,
Roorkee
- 1933 Raja Jwala Prasad Retired Chief Engineer
P W D , Irrigation Branch U P
- 1934 The Hon ble Sir J P Srivastava Kt M Sc
M L C Minister for Education U P
- 1935 Sir William Stampe Kt C I E I S E Chief
Engineer and Secretary to Government U P ,
P W D I B
- 1936 Mr H R Harrop M A Director of Public Instruc-
tion United Provinces
- 1937 Lt Col W deH Ha g D S O R I Chief En-
gineer P W D B and R Branch United
Provinces
- 1938 Mr M R Richardson C I E I S E Chief
Engineer P W D I B United Provinces
and President of the Central Board of Irriga-
tion
- 1939 His Excellency Sir Harry Ha g K C S I C I F
I C S Governor of the United Provinces
- 1940 Dr Panna Lall M A B Sc LL B (Cantab)
D LITT (Agra) Bar at Law C I F I C S
Adviser to His Excellency the Governor
United Provinces
- 1941 Mr J C Powell Price M A C I E I S
Director of Public Instruction United Prov-
inces

FROM 1890.

(Of ranks included in Articles 1 to 30 only of the Warrant
of Precedence, 1922)

-
- 1890 The Hon'ble Sir Auckland Colvin, K C M G , C I E
Lieut -Governor, N W P.
- 1892 The Hon'ble Sir Auckland Colvin, K C M.G , C I E
Lieut -Governor, N W P
- 1895 His Honour Sir A P MacDonnell, K C S I , Lieut
Governor, N -W P
Lieut General Sir W K Elles, K C B , Command
ing the Forces in Bengal
- 1900 His Honour Sir A P MacDonnell, K C S I , Lieut -
Governor, N -W P
- 1901 The Bishop of Lucknow
- 1902 His Honour Sir J J D LaTouche, K C.S I , Lieut
Governor, U P
Major General W T Shone, C B , D S O , D G M W
Major General Beresford Lovett, C B , D G M W
- 1903 Sir A T Arundel, K C S I , I C S , Member of the
Viceroy's Council
1905. His Excellency Lord Curzon of Kedleston P C ,
G M S I , G M I E , Viceroy and Governor-
General of India (April 8)
His Honour Sir J J D LaTouche, K C S I , Lieut.-
Governor U P.
- 1906 Her Royal Highness the Princess of Wales (March 7)
- 1913 Lord Islington, P C , G C M G , D S O , Chairman
Royal Commission on the Public Services in
India

- 1916 His Honour Sir James Meston, K.C S.I , Lieut -Governor, U P
- 1917 His Honour Sir James Meston, K C S I , Lieut -Governor, U P
 General Sir Charles Munro, G C B , G C M G ,
 G C S I Commander in Chief in India
 Lieut -General Sir George Kirkpatrick, K C B ,
 K C S I , Chief of Staff in India
- 1918 Lieut -General Sir H D Keary, K C B , D S O ,
 G O C , Meerut Division
- 1919 Mr T R J Ward C I E M V O , Inspector General of Irrigation in India
 General Sir Charles Munro, G C B , G C M G ,
 G C S I , Commander in Chief in India
- 1920 Lieut General Sir Havelock Hudson, K C B , C I E
 G O C in C Eastern Command
- 1921 General Sir Claude Jacob, K C B , K C M G Chief of the General Staff in India
 Major General Sir Edwin Atkinson K B E , C B ,
 C M G , C I E , Master General of Supply, India
 Mr E St J Gebbie C I E Inspector General of Irrigation India
 Mr B N Sarma, Revenue and Public Works Member for Education U P
- 1922 His Excellency Sir Harcourt Butler K C S I , C I E , Governor, U P
 Field Marshall Sir William Robertson, G C B.,
 G C M G K C V O D f

The Hon'ble Mr. C. Y. Chintamani, Minister for Education and Industries, U P

1923 His Excellency Sir William Marris, K C S I
K C I E , Governor, U. P.

His Excellency Sir Edward Maclagan, K C S I,
K C I E , Governor, Punjab

Major General Sir Edwin Atkinson, K B E , C B ,
C M G C I E Master General of Supply,
India

The Hon ble Raja Parmanand Minister for Education,
U P

. 1925 The Hon ble Rai Rajeshwar Bah, O B E , Minister for
Education, U P

Major General R N Harrey, C B , C M G , D S O ,
Engineer in Chief Army Headquarters, India

1926 His Excellency Sir Malcolm Hailey, K C S I , C I E ,
Governor, Punjab

The Hon ble Sardar Jogendra Singh, Minister for Agriculture,
Punjab

1928 His Excellency Baron Irwin of Kirby Underdale,
G M S I , G M I E , Viceroy and Governor-
General of India (April 11)

1929 The Hon'ble Raja Bahadur Kushalpal Singh, M A ,
LL B , Minister for Education, U P

1931 The Hon'ble Mr J P Srivastava, M Sc , Minister
for Education U P

1932 H H the Maharaja of Jaipur

Major General Addison, Engineer in Chief, Military
Engineering Service in India

- 1933 Major-General J E S Brind, Deputy Chief of the General Staff Army Headquarters
- 1935 Sir Sita Ram, Kt President Legislative Council
- 1936 Major General H S Gaskell, Engineer-in-Chief.
- 1937 R S Weir, Esq, I E S Director of Public Instruction United Provinces
- The Hon'ble Pandit Pware Lal Sharma M A, LL B, Minister for Education, United Provinces
- The Hon'ble Pandit Govind Ballabh Pant, B A, LL B, Premier and Minister of Home Affairs and Finance, United Provinces
- 1938 F A Farquharson Esq Secretary to Government, Punjab P W D, I B
- R S Weir Esq I E S, Director of Public Instruction United Province-
- 1939 The Hon'ble Sri Sampurnanand B Sc Minister for Education, United Provinces
- His Excellency Sir Harry Haig K C S I, C I E I C S Governor of the United Provinces and Lady Haig
- 1940 His Excellency Sir Maurice Garnier Hallett, K C S I C I E, I C S Governor of the United Provinces
- Dr Sir Shah Muhammad Suleman Vice Chancellor of the Muslim University Aligarh and Judge of the Federal Court
- Dr Panna Lall M A B Sc LL B (Cantab), D LITT (Agra) Bar at Law C I E I C S, Adviser to His Excellency the Governor, United Provinces
- 1941 Mr J C Powell Price M A, C I E, I E S Director of Public Instruction, United Provinces

List of distinguished passed students of the Thomason College.

-
- 1851 C C Anderson, Esq
 1856 Lieutenant General H E Whish
 1860 Lieutenant General W K Elles
 1861 Lieutenant Colonel W H Mackesy
 1863 General D A Jackson
 1864 W C Wright, Esq
 1865 H L Monk, Esq
 1866 Lieutenant Colonel A C Bigg-Wither
 1868 Lieutenant Colonel T F Miller
 1868 C G Palmer, Esq
 1870 J S Slater, Esq
 1871 E W P Foster, Esq
 1871 F R Bagley, Esq
 1872 Sir W Willcocks, K C M G
 1872 G M R Field, Esq
 1873 Sir W T Garstin
 1873 Rai Bahadur Sir Ganga Ram, C I E , M V O.
 1876 W MacDonald Esq
 1876 W B Gwyther, Esq
 1877 J T Farrant, Esq
 1878 C S R Palmer, Esq
 1878 W E T Bennet, Esq , C S I
 1878 G M Harriot Esq , C I E
 1879 C E V Goument, Esq , C S I
 1881 F E Gwyther, Esq
 1881 R L Purves, Esq
 1882 G T Anthony, Esq
 1882 J M Taylor, Esq , C I F.
 1883 F O Oertel, Esq
 1883 C V D Pratt, Esq
 1885 A J Wadley, Esq

- 1886 Rai Bahadur Rala Ram, C I E , I.S O.
 1886 C H Wollaston Esq
 1888 Sir J Eaglesome, K C M G
 1889 H W M Ives, Esq , C I E
 1889 F T Bates Esq
 1890 F W Allum Esq C B E
 1891 J N Taylor, Esq C I E , O B E
 1891 C B Mellor, Esq
 1892 W C W Muller, Esq , O B E
 1893 A C Vernières, Esq , C I E
 1893 V Stain'ou, Esq
 1894 C E Rushton, Esq
 1895 R V Symons, Esq , O B E
 1895 Rai Bahadur Lala Bishun Swarnp
 1898 Sir J B G Smith, C I E
 1898 H Dale Green, Esq
 1900 Raja Jwala Prasad
 1901 E L Glass, Esq
 1902 E B Robey, Esq
 1904 Rai Bahadur Chuttan Lal
 1904 F R Morgan, Esq
 1904 Rai Bahadur B Natha Singh.
 1905 C W M Collins, Esq
 1906 Rai Bahadur P L Dhawan
 1906 A E Watkins
 1907 F T Jones
 1908 Khan Bahadur Mohammad Abdul Aziz, C I E.
 1909 Rai Sahib Gurcharan Das Mehta

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 1870 J S Slater, Esq
 1871 E W P Foster Esq
 1871 F R Bagley* Esq
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 1872 G M R Field Esq
 1873 Sir W T Garstin
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 1883 C V D Pratt, Esq
 1885 A J Wadley, Esq

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 1890 F W Allum Esq C B E
 1891 J N Taylor Esq C I E O B E
 1891 C B Mellor Esq
 1892 W C W Muller Esq , O B E
 1893 A C Vernières, Esq , C I E
 1893 V Stanton Esq
 1894 C E Rushton Esq
 1895 R V Symons Esq , O B E
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 1900 Raja Jwala Prasad
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The rules in this Circular are liable to revision without notice in view of possible changes in the Course of Study, orders of Government, etc.

[C I R C U L A R.]

**THOMASON COLLEGE OF CIVIL ENGINEERING,
ROORKEE.**

These rules apply to admissions in 1912 and till further notice.

CIVIL ENGINEER CLASS.

1 Candidates for admission to this class through the entrance examination must be Indians as defined below * Candidates whose parents or guardians are domiciled in Bengal, Madras and Bombay Presidencies are, however, not eligible for admission without the previous sanction of the Local Government Candidates must not be under 17 or above 21 years of age on June 1, immediately preceding the entrance examination in which they wish to appear

Overage candidates are allowed to sit for the competitive entrance examination provided they are not over 25 years of age, on June 1, immediately preceding the entrance examination in which they wish to appear. Should they qualify, they will be allowed to enter the college provided the number of candidates of the correct age, who qualify, is less than the

* A "Native of India" means any person domiciled in British India or within the territories of Indian Princes tributary to, or in alliance with His Majesty and born of parents habitually resident in India and not established there for temporary purposes only

NOTE—To constitute residence in a particular province or state the parent or guardian of a candidate for admission to the Thomason College, Roorkee, must have definitely settled and resided there for a period of three years.

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[C I R C U L A R.]

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sanctioned strength of the class. Such candidates will not be eligible for academic prizes or United Provinces Government scholarships.

Only such private students from outside the United Provinces or States within or outside the United Provinces will be admitted to the Civil Engineer Class of the College, who previously apply through the Government of the Province or State in which they reside for permission to appear in the entrance examination and provided that the Government of State concerned agrees, in the event of such students gaining a place in the examination which would entitle them to admission, to pay a contribution towards the cost of their training, based on the actuals of the preceding financial year. The only exceptions to this rule will be where the United Provinces Government agree in special cases to waive this contribution or the students themselves agree to pay it.

From the entrance examination to be held in June, 1939, inclusive the Punjab Government will not nominate, nor pay for any student admitted to this College from that province.

There is however, no bar to the admission of a candidate from that province should the parent or guardian of any candidate be willing to pay the cost of training in addition to the ordinary fee and living expenses at the College.

The name and age of a candidate will be taken from the original university records and for candidates who have not appeared for a university examination from college or failing a college from school records. No alterations in the records will be recognized except in the case of purely clerical errors. Application for examination must be accompanied by a true copy of university, college or school registers, as the case may be, signed by the registrar, principal or head master and under no circumstances will any alteration be accepted to the advantage of the candidate.

All Europeans before admission must be properly protected by inoculation against enteric fever to the satisfaction of the Medical Officer in charge of the College. If not protected they must be inoculated on arrival at the College.

2 No European or Anglo-Indian will be allowed to enter the College if married or to continue in the College, if he marries before completing his course.

3 The College session commences on October 16. Applications for admission should *reach* the Principal, *complete in all respects, not later than April 15, nor before February 1,* preceding. The entrance examination will be held in the first week of June or thereabouts. All applications should be accompanied by a statement of—

Date of birth of the candidate

The school or schools at which he has been educated

The profession, situation, relationship and residence of his father or guardian

One of the examination centres where he wishes to be examined (*vide* paragraph 9)

N B —Great care should be taken to ensure that forms are complete in every respect. Incomplete forms are liable to be rejected. Forms of application with instructions showing how they should be filled in may be detached from the circular when required.

4 Every candidate will be required to produce testimonials (which will not be returned) of good moral conduct, signed by the instructor under whom he has been educated, or of some other superior under whom he may have been employed or brought up and these testimonials should have reference especially to his conduct during the two years immediately preceding his application for admission.

5 A medical certificate must be furnished on the prescribed printed form enclosed in the circular, no other form will be accepted

NOTE—The fee prescribed by Government for this examination is Rs 4 which must be paid by the candidate direct to the Civil Surgeon or the Commissioned Medical Officer prior to the examination

6 The examination fee of Rs 20* should be deposited in any Government Treasury in United Provinces under head VVI—Education I General—Miscellaneous, Civil Engineering College Roorkee, Examination Fee", through treasury chalang which are obtainable from the Treasury. The receipted treasury chalan must be attached to the application form. Fee by postal money orders will be acceptable from stations where there are no Government treasuries. Until the fee or the receipted Treasury chalan has been received by the Principal, the candidates' application will not be registered. In no circumstances will this fee be refunded

7 The minimum qualifying test for admission to the entrance examination is the Intermediate Examination with Physics, Chemistry and Mathematics of the Board of High School and Intermediate Education United Provinces, or the Intermediate Examination with Mathematics, Physics and Chemistry of any University in British India established by law. Those candidates, who have appeared with the subjects mentioned above for this examination, before the date of the College entrance examination will also be allowed to sit provisionally for the College entrance examination. Such candidates, must however, furnish with their application forms, a certificate signed by the Head of their College showing the subjects taken by them for the Intermediate Examination. The information of their passing the Inter-

mediate Examination accompanied by a certificate from the Head of the College certifying it should be sent as soon as possible otherwise their results will be excluded from the entrance examination results of this College

8 The entrance examination is competitive and those who stand highest on the list of passed candidates* (only to the number of available vacancies which is for the present fixed at 30) will be selected for admission to the College. Provided the candidates pass the qualifying entrance examination six places will be reserved for Moslems one for scheduled castes and one for other minority communities from the United Provinces. The Local Government has power to relax in very special cases the rule regarding the number of admissions. Any candidate who after being duly notified fails to join the College on the day fixed for the re-opening of the session or, who, before that date fails to obtain from the College authorities definite permission to join on some later date will forfeit his right to admission.

No replies will be given to any telegrams or letters enquiring the results of the entrance examination. A copy of the printed results will be sent to each candidate when published.

9 The following is the list of the four groups of subjects for the competitive entrance examination. The examination will be held by means of written papers at the following centres only, viz Roorkee Allahabad, Lucknow, Agra, Naini Tal and Mussoorie*. Candidates may elect the centre at which they wish to be examined.

* The fixing of Mussoorie as a centre is conditional on seven candidates being forthcoming.

GROUP No I. LANGUAGES (250).

(a) English Essay, General Knowledge, and Every Day Topics*2 Hours**150 Marks.*

The candidates will be required to write a short essay on a given subject. The subject set will not be one requiring deep knowledge or thought.

On General Knowledge and Every Day Topics questions will be set on (i) the more important topics of the day and (ii) simple literary, geographical, scientific and other questions.

The chief object of the English Essay and of the questions on General Knowledge and Every Day Topics is, in the first instance, to test the ability of the candidates to express themselves in clear and correct English as well as their general knowledge and interest in current affairs.

Marks up to 10 per cent of the maximum may be deducted for bad handwriting, errors in spelling, careless work and much crossing out.

(b) Hindustani*2 Hours**100 Marks.*

Translation of extracts, in the Persian or Hindi character, from an easy Hindustani book, and of easy English sentences into colloquial Hindustani, and grammatical questions. Full marks will not be given to candidates unable to write the Persian or Hindi character, but the Hunterian system of transliteration may be adopted.

GROUP No II • MATHEMATICS (300)

(a) Mathematics I (Arithmetic, Geometry and Mensuration).

8 Hours

100 Marks

In this paper questions will be set on problems on (i) General arithmetic principles (ii) the subject matter of plane geometry comprising the syllabus as required for the High School Examination of the United Provinces Intermediate Board and (iii) mensuration of plane rectilinear figures and of solids like parallelipeds prisms pyramids, cones cylinders, spheres and their sections

Candidates will be expected to be familiar with abridged methods of calculation In geometry proofs of proposition and simple riders involving solution of graphical problems may be set

(b) Mathematics II (Algebra, Trigonometry and Co-ordinate Geometry)

8 Hours

100 Marks

Algebra —General Algebraic principles, factors fractions, solution of linear simple and simultaneous and of quadratic equations elementary properties of ratio proportion and various elementary graphics and graphical solutions of equations Binomial theorem for positive index and use of binomial and exponential theorems for any index Elementary partial fractions Simple arithmetic and finite geometrical sequences Use of logarithms

Trigonometry —Trigonometrical ratios and their values in special elementary cases General properties of the ratios and identical relations between them Formulae for ratios of multiple and sub multiple angles Elementary relations

*No books of any kind are allowed in the Examination halls Logarithmic tables if required will be supplied by the officer conducting the examination They should not be employed to avoid ordinary abridged arithmetical calculations

gen, nitrogen, the halogens, carbon, sulphur, phosphorus and silicon.

No practical examination is prescribed, but all candidates are expected to have previously undergone an elementary course of practical work in a laboratory.

GROUP No IV. DRAWING* (150).

(a) Geometrical Drawing.

8 Hours

100 Marks

Printing Simple Diagonal and Vernier Scales Drawing of plane Geometrical figures, arches, projections and sections of simple solids The course is covered by Chapters 1—7 inclusive of the Thomason College Manual of Drawing, Part I.

(b) Freehand Drawing.

1 Hour

50 Marks

Drawing of any architectural ornament or pattern to a reduced or enlarged scale All work will be done free hand, no rulers, etc being allowed.

10 To pass the examination a candidate must obtain $33\frac{1}{3}$ per cent. of the 250 marks for Group I, Languages and $33\frac{1}{3}$ per cent. of the 150 marks for Group IV, Drawing; $33\frac{1}{3}$ per cent. of the 100 marks for the Mathematics, Paper I, $33\frac{1}{3}$ per cent. of the 100 marks for the Mathematics, Paper II, and $33\frac{1}{3}$ per cent. of the 100 marks for the Mechanics Paper, and $33\frac{1}{3}$ per cent. of the total aggregate number of marks, viz. 800. No marks will be allotted in any paper if a candidate obtains less than 20 per cent. and up to 10 per cent. of the marks in each paper may be deducted for slovenly work.

11. Sixteen scholarships of Rs.50 a month are sanctioned for this class out of which three are reserved for

*Particular attention is called to this subject in which many candidates fail to qualify.

students from the scheduled castes one in each year. Of these scholarships six will be awarded to first-year students, five to second-year students and five to third-year students.

These scholarships are awarded to first-year students on the results of the entrance examination and to second and third year students on the results of the first and second year's work and examinations, and are tenable for the *nine months of the College session*. All the scholarships are reserved for candidates of the United Provinces

Government has been pleased to sanction the award of a passing Scholarship of approximately Rs 250 to Rs 300 payable from the College Stores Trust Fund to the senior European or Anglo Indian student, who successfully passes the third year Final Examination of the Civil Engineer Class, after completing the whole course of three years

12 A College tuition fee of Rs 24 per mensem will be paid during the session by each student of the class irrespective of his domicile

13 The engineer class students maintain and run a common mess catering for vegetarians, non vegetarians, and those messing according to European diet. The students in the running of this mess are helped by a member of the staff appointed by the Principal each session as President. All students are advised to join. Should they not do so, they have to make their own arrangements for messing

14 Students are encouraged to take up military training by joining either the Indian Auxiliary Force or the University Training Corps. Physical Training is compulsory

15 It is desirable that every student should be able to swim before joining the College

16 Each student should on joining the College, be provided with a good set of drawing instruments and necessary

class books for his own use. Class books are obtainable at the College Book Depot.

17. Quarters are provided for all students of the Civil Engineer Class in hostels near the College, a student being given a room to himself. The charges for rent and conservancy are Rs.5-12 per mensem. The hostels have been electrified, the charges for current being annas four per unit. Students have to provide their own fans.

18. A limited number of sets of furniture, as detailed below, are available for issue to students in order of seniority for which a monthly rental of Rs. 2-8 is charged:—

- 1 Bed cot with mosquito frames and mattress.
- 1 Armless chair.
- 1 Easy chair.
- 1 Table (large), with book shelf.
- 1 Small table
- 1 Towel rack.
- 1 Chest of drawers

Students should arrange to bring their own mosquito nets and durries.

19. Every candidate before he can be allowed to join the College must satisfy the Principal that he has sufficient means to defray his expenses during his course at Roorkee.

Any student failing to pay his College dues,* or to make sufficient progress in study, will be suspended or ultimately

*The words "College dues" include—

	cost of articles purchased
from pocket money	
from savings	
from parents	
from friends	
from other sources	
from College shop	
from College stores	
from Engineer Class	
from Mess.	

removed from the College. The parent or guardian of any student so suspended or removed shall be held responsible for the payment of any debts whatsoever which may have been contracted while the student was in the College. Although every precaution is taken to prevent students from running into debt, the College authorities are in no way to be considered responsible for such debt.

20 The College year usually commences on October 16 and closes on July 15. Candidates admitted to the College on the results of the entrance examination held in June will be informed on what date to join the College in the following October.

21 Students in the Civil Engineer Class are trained for the Indian Engineering Services and the Civil Engineering profession generally. Many have gained employment outside India.

22 The Civil Engineering Course extends over three years. In the third year in March the final examination is held, when those students who have completed their course of study and have qualified will be awarded a diploma in Civil Engineering and will be entitled to use the letter C E (Roorkee) after their names.

A fee of Rs 40 is payable in the third year in April by each student, who intends to appear for this examination. If a student, having paid the fee, does not eventually appear for the examination, the fee will not be refunded.

23 The marks each student has to obtain to qualify for admission to the second and third year, and to obtain the College Diploma in Civil Engineering, awarded upon completion of his third year are as follows.

- (a) For admission to the second year, the first year students are required to obtain 33 per cent of the marks allotted to each Sub Group for

written examination and practical work and 50 per cent of the total marks. Those who fail to qualify as above will be given one more chance for admission by repeating the first-year class. Such students will not be eligible to compete for the United Provinces Government Scholarships or academic prizes.

- (b) To return to the College at the end of the second year the students are required to obtain 33 per cent of the marks allotted to each Sub Group for written examination and practical work, in that year (i.e. in the second year), and 50 per cent of the total marks for the two years, i.e. of the full marks for the second year together with the reduced marks of the first year.
- (c) To pass out of the College at the end of the third year, the students are required to obtain 33 per cent of the marks allotted to each Sub Group for written examination and practical work, in that year (i.e. the third year), and 50 per cent of the total marks for the three years, i.e. of the full marks for the third year together with the reduced marks for the first and second years.
- (d) The ordinary Diploma is awarded to students who qualify as above and obtain less than 66 per cent of the total marks.
The Honours Diploma is awarded to students who qualify as above and obtain 66 per cent or more of the total marks.

Students of second and third year who fail to qualify as above will neither be allowed to return to the College nor will they be awarded the Diploma in Civil Engineering as the case may be. Should their failure, however, be due to

prolonged absence through sickness or other circumstances beyond their control such special cases will be considered and decided upon their merits.

24. No student will be eligible for any College academic prizes unless he completes his course concurrently with the students who entered the College in the same year.

25. Arrangements for giving practical training to Engineer students of the United Provinces upon completion of their course at the College will be made as far as possible in the United Provinces Public Works Department, Irrigation and Public Works and Roads Branches. During the period of such practical training no allowances of any kind are now sanctioned.

26. The list of the text books, etc. used in the Civil Engineer classes of the College is given on page 89. The prices quoted are approximate.

27. Drawing instruments, drawing boards, T-squares, etc. are procurable in the Bazar; every student must provide himself with them at his own cost.

28. Any student, who is expelled from the College for misconduct, will not be allowed to appear in any examination conducted by the College.

29. Students will not be permitted to appear for any external examinations during their College course.

30. All students have to be in possession of the booklets of Standing Orders and Course of Study. A plea of ignorance for the breach of any of the former is not accepted. A copy of each of these booklets will be issued to each new student on arrival and the cost recovered in his first bill. Students therefore should not provide themselves with out of date copies.

Any student requiring an extra copy of the Course of Study may obtain it on payment from the Assistant Superintendent Government Press, Roorkee ~~Bazaar, Roorkee~~ ^(15/11/17) Roorkee.

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Students of second and third year who fail to qualify as above will neither be allowed to return to the College nor will they be awarded the Diploma in Civil Engineering as the case may be. Should their failure, however, be due to

prolonged absence through sickness or other circumstances beyond their control. Such special cases will be considered and decided upon by the Council.

24. No student will be eligible for any College academic prize unless he completes his course concurrently with the students who entered the College in the same year.

25. Arrangements for giving practical training to Engineer students of the United Provinces upon completion of their course at the College will be made as far as possible in the United Provinces Public Works Department, Irrigation and Buildings and Roads Branches. During the period of such practical training no allowances of any kind are now sanctioned.

26. The list of the text books, etc. used in the Civil Engineer classes of the College is given on page 89. The prices quoted are approximate.

27. Drawing instruments, drawing boards, T-squares, etc. are procurable in the Bazar; every student must provide himself with them at his own cost.

28. Any student, who is expelled from the College for misconduct, will not be allowed to appear in any examination conducted by the College.

29. Students will not be permitted to appear for any external examinations during their College course.

30. All students have to be in possession of the booklets of Standing Orders and Course of Study. A plea of ignorance for the breach of any of the former is not accepted. A copy of each of these booklets will be issued to each new student on arrival and the cost recovered in his first bill. Students therefore should not provide themselves with out of date copies.

Any student requiring an extra copy of the Course of Study may obtain it on payment from the Assistant Superintendent, Government Press, Roorkee Branch, Roorkee.

Memorandum of Expenses of Students of the Civil Engineer Class

THE following information is published for the guidance of parents and guardians, and for their assistance in determining the probable expenses of a course of instruction at the College. Economical management is aided as far as possible by the College authorities.

It must be clearly understood that students cannot be permitted to remain in the College if their dues* of any kind are not paid promptly on demand. The probable expenses of a student while at the College are shown under three heads, viz. the initial expenses at the beginning of each yearly term and the monthly current expenses and the final examination expenses. All College dues must be paid before the 21st of the month to which they relate and any student in arrears on the first of each month will lose all marks for any examination that may occur between this date and that on which he clears his account. Guardians are advised to send the above amounts direct to the Principal, and, if convenient, the whole remittance intended for the student can thus be sent, and the balance will at once be made over to him.

* NOTE.—The words "College dues" include—

- (i) College fees
- (ii) Rent and conservancy
- (iii) Rent of College furniture
- (iv) Electric current charges
- (v) Recreation fund subscription and cost of articles purchased from recreation stores
- (vi) All dues in connexion with Engineer Class Club
- (vii) All dues of College dairy, College shoe maker, College shop-keeper, College tailor, College sweet-seller and College stores
- (viii) All dues in connexion with common Civil Engineer Class Mess

Details of Expenses

Each student upon first joining the College and at the commencement of each subsequent year has to incur certain non-recurring expenses. The details of these with approximate costs, as far as it is possible to give them, are stated below. Every student has to have certain text-books of his own for the year's work. These books are obtainable at the College Book Depot at prices 12½ per cent. lower than published prices. The costs quoted take this into consideration. The list of these books is given on page 96.

N B —List and prices are liable to alteration. Prices shown are all approximate.

Details	Price	Remarks
<i>Upon first joining</i>	<i>Rs. a.</i>	
Box of drawing instruments	} Prices too variable to be quoted
T-square, 36" .. ..	..
Set squares, 45° and 60° .. ..	..
Brushes and colours .. ..	..
Two drawing boards (24"×36" and 24"×18") .. ..	..
One ten inch slide rule .. ..	..
One case of architectural scales .. ..	..
One case of engineer's and surveyor's scales .. ..	..
One workshop tool set comprising : .. ..	..
1 steel L-square .. ..	..
1 steel rule, 12" .. ..	..
1 pair inside callipers .. ..	..
1 pair outside callipers .. ..	..
1 pair of wing compasses .. ..	..
Text-books	57 15	
Level books, each	1 4	
Survey field books, each	0 12	
Survey note books, each	3 0	
<i>Entrance fee</i>		
C. E. Recreation, Sports and Regatta	15 0	} Obligatory to join.
C. E. Students' Club	10 0	
C. E. Students' Common Mess	2 0	

Details	Price	Remarks
	Rs. a.	
<i>Commencement of 2nd year</i>		
1 Chesterman steel woven tape, 100 feet		
Text books, say	72 5	
<i>Commencement of 3rd year</i>		
Text books, say	38 0	
<i>At end of 3rd year</i>		
Final examination fee	40 0	

Monthly expenses

(9 months only)

Items	Price	Remarks
	Rs. a	
College fee	24 0	} Fixed obligatory charges.
Rent and conservancy	5 12	
Rent of College furniture	2 8	
Subscription C. E. Recreation Sports and Regatta	7 0	
Ditto Students' Club	3 0	
College Magazine subscription.. ..	0 4	} Joining the Mess is optional. Those who do not join make their own arrangements.
Subscription C. E. Common Mess	1 0	
Vegetarian Messing	23 0	
Non-vegetarian Messing	31 0	} Rs 5 if fan is used
Electric light	3 0	
Bearer, say	12 0	
Bhusty, say	2 0	
Dhobi, say	3 0	
Sweeper, say	2 0	} Approximate only.

List of essential text-books

Particulars	Cost
<i>Civil Engineer Class—I Year</i>	<i>Rs. a.</i>
"Dynamics"—London	5 8
"Statics"—Pun, B D .. .	5 12
"Examples in Theory of Structures"—London ..	3 8
"Theory of Structures"—Morley ..	8 8
"Roorkes Treatise on Surveying," Part I ..	3 3
"Heat for Engineers"—Darling ..	7 12
"Heat Engines"—Low	10 0
"Theory of Machines"—Mackay ..	13 12
Total ..	<u>57 15</u>

<i>Civil Engineer Class—II Year</i>	
"Structural Engineering"—Husband and Harby ..	10 12
"Roorkes Treatise on Bridges"	7 0
"Military Engineering (Volume V) Roads, 1933" ..	5 0
"Roorkes Treatise on Railways" ..	5 1
"Roorkes Treatise on Surveying,"—Part II ..	2 10
"Callendar's Steam Tables"	2 4
"Mollier's Diagrams"	1 4
Maceal's "Continuous Current"	9 8
Maceal's "Alternating Current"	9 8
"Applied Thermo-dynamics"—Robinson ..	10 12
"Hydraulics" by Lewitt	8 10
"Indian Water Works Practice by" Banerjee ..	..
Total ..	<u>72 5</u>

<i>Civil Engineer Class—III Year</i>	
"Elements of Reinforced Concrete Design"—Adams ..	5 0
"Concrete Plain and Reinforced" by Taylor Thomson, Volume I	27 0
"Sewers" by Bevan and Rees	6 0
"Sewage Purification and Disposal" by Kershaw ..	..
Total ..	<u>38 0</u>

Notes for the guidance of candidates when filling in application forms for Entrance Examination for classes in the
Thomason College

General

IMPORTANCE.

It is impressed upon candidates that failure to observe these instructions implicitly must result in prolonged correspondence and possibly the rejection of the application. All forms when sent to this College should be pinned together. All forms must be kept clean.

NAME OF CANDIDATE.

The full name of the candidate *and not initials* must be shown on all papers, and it is important to note that only the name as entered in the educational certificate must be used. Spelling of name should be the same in all the forms as are in the educational certificate or, as will appear in the *Gazette* in case of provisional candidates. No additions to or omissions from that name will be permitted. In the case of Europeans or Anglo Indians the production of a birth or baptismal certificate in support of additional Christian or surnames will not be recognized.

DATE OF BIRTH.

The date of birth as entered in the application forms must be the same as that entered in the educational certificate which must be certified. The production of a birth certificate or horoscope will not be accepted as proof for any change from the date given in the educational certificate.

GENERAL.

Separate forms should be filled in for each Examination i.e. for Civil Engineer, Overseer or Draftsman classes.

medical officer granting the certificate. If the eye sight is defective the medical officer granting the certificate should be requested to quote the paragraph noted on reverse

AGE CERTIFICATE.

It should be signed by the officers named in the form. Name of school from the records of which the date of birth has been entered should be given in the place provided for it. Date of birth should be written and not the word 'correct' etc

STATEMENT OF AGE, EDUCATION, ETC

It should be carefully completed. In column 3 place of domicile of father or if father deceased that of the guardian should be filled in. Particulars of father as required in column 5 should be filled fully. If father is deceased full particulars of guardian should be filled in and the fact of the father's death should be stated. It should generally be signed by the Head Master or the Principal and place and date to be written in the left hand side. One of the certificate at bottom to be crossed out and the other initialled where permanent address is required permanent address should be given and not a temporary one.

DOMICILE.

In order to obviate lengthy correspondence all claims to United Provinces domicile should be supported by a certificate from the District Magistrate in the enclosed form. In accordance with the rules laid down in the Circular 1st Certificate in the form should be signed by the District Magistrate of the district in which the candidate's father or guardian is domiciled.

MADAN GOPAL SARDANA

RAI BAHADUR

Principal.

ROORKEE

October 16, 1941

APPENDICES

Forms required to accompany a candidate's application for admission to the Thomason College, Roorkee, are shown below

- 1 Moral certificate
- (2) Educational certificate *
- (3) Medical certificate on the form prescribed
- (4) A certificate of the recorded date of birth
- (5) Declaration as Statutory Native of India in case of other than pure Indians not included in the circular and may be asked for when required
- (6) Statement showing age, education, etc of candidate
- (7) Domicile certificate (only for U P students)

* Copies properly certified by a Government gazetted officer only will be accepted

FORM No. 1.

Moral Certificate required from candidates for admission to the Entrance Examinations of Civil Engineer and Overseer Classes of the Thomason College, Roorkee.

Certified that _____ bears a good moral character and has done so for the last two years

STATION _____
Date _____

Signature and designation of Instructor under whom educated, or superior under whom employed or brought up.

FORM No 2

Copy of Educational Certificate to accompany application of
candidate for admission to the Thomason College
Roorkee

Verified

(Signature of any gazetted officer of Government)

FORM No. 1.

Moral Certificate required from candidates for admission to the Entrance Examinations of Civil Engineer and Overseer Classes of the Thomason College, Roorkee.

Certified that _____ bears a good moral character and has done so for the last two years.

STATION _____

Date _____

Signature and designation of Instructor under whom educated, or superior under whom employed or brought up.

FORM No. 2.

Copy of Educational Certificate to accompany application of
candidate for admission to the Thomason College,
Roorkee.

Verified.

(Signature of any gazetted officer of Government)

FORM No 3

Medical Certificate to accompany application of candidate for admission to the Thomason College, Roorkee.

I CERTIFY that I have carefully examined _____, that his eye sight is of the standard prescribed,* that he is fairly robust, and his constitution is sound and that he has no disease, bodily or mental infirmity unfitting him now or likely to unfit him in the future, for active out door service in the Public Works Department

Marks of identification

Station _____

Signature _____

Dated _____

Designation _____

N B—The above certificate must be signed by a *Commissioned Medical Officer or by a Medical Officer in charge of a Civil Station* within a month before date of submission and must include a description giving clearly the personal marks of identification of the Candidate who has been medically examined. No other certificate will be accepted nor will application be entertained unless the above rules be strictly complied with

*Please quote the no of para if the eye sight of the Candidate is according to one of the prescribed paras on reverse

Standard of eye-sight required for admission to the Department of Public Works of India.

1 If myopia in one or both eyes exists, a candidate may be passed provided the myopia does not exceed 3.5 D, and if, with correcting glasses not exceeding 3.5 D, the acuteness of vision in one eye equals $\frac{6}{9}$, and in the other $\frac{6}{6}$ there being normal range of accommodation with the glasses.

2 Myopic astigmatism does not disqualify a candidate provided the lens or the combined spherical and cylindrical lenses required to correct the error of refraction, does not exceed 3.5 D, the acuteness of vision in one eye, when corrected being equal to $\frac{6}{9}$ and in the other $\frac{6}{6}$, together with normal range of accommodation with the correcting glasses, there being no evidence of progressive disease in the choroid or retina.

3 A Candidate having total hypermetropia not exceeding 4 D is not disqualified provided the sight in one eye (when under the influence of atropine) equals $\frac{6}{9}$ and in the other equals $\frac{6}{6}$ and with + 4 D glasses or any lower power.

4 Hypermetropic astigmatism does not disqualify, provided the lens or combined lenses required to cover the error of refraction do not exceed 4 D, and that the sight of one eye equals $\frac{6}{9}$ and the other $\frac{6}{6}$, with or without such lens or lenses.

5 A Candidate having a defect of vision arising from nebula of the cornea is disqualified if the sight of one eye be less than $\frac{6}{12}$. In such a case the better eye must be emmetropic. Defects of vision arising from pathological or other changes in the deeper structures of either eye, which are not referred to in these rules, may exclude a Candidate.

6 A Candidate is disqualified if he be unable to distinguish the principal colours (achromatopsia).

7 Paralysis of one or more of the exterior muscles of the eyeball disqualifies a Candidate for it.

FORM No 4

University, College or School Certificate of age required in
case of Candidates for the Entrance Examination of the
Thomason College, Roorkee, United Provinces.

Certified that the date of birth of _____

son of _____ as entered in the records

of the _____ (a) { University.
College
School.

is _____

Signature of—

STATION

Date

(a) { Registrar _____ University.
Principal _____ College
Head Master _____ School.

(a) Two of these to be struck out

FORM No 6

Statement of age, Education etc to accompany application for admission to the _____ Class of the Thomason College Roorkee

Name of candidate	Date of birth as furnished to the Registrar of the University (1) University (2) College (3) School	Province of domicile of the father and if father not living of guardian where he must have definitely settled and residence for a period of three years	School or College at which educated	Name of profession as stated on residence and caste of father or if father not living of guardian showing relationship of latter to candidate	Centre selected in case of candidates of United Provinces for the C F Class	Remarks

I am willing to be examined for admission

Place _____

Date _____

Signature of candidate

Signature of Head Master or forwarding officer

Permanent } _____
add as } _____

Certificate in case of candidates for admission to the Overseer Class

Certified that I have not studied for more than three months in the Civil Engineer Class of the Thomason College Roorkee

Certificate in case of all candidates (one of which is to be crossed out and the other is utilised) —

Certified that I have appeared for the Entrance Examination of the _____ Class of the Thomason College Roorkee in the year _____ and my Roll no was _____

Certified that I have not appeared for any Entrance Examination of the Thomason College Roorkee

Since seats are reserved in the Civil Engineer and Overseer classes for United Provinces candidates of the minority communities who include depressed classes also it would be in the interest of the candidates if they give the castes prominently should they belong to any noted on reverse of the form

Signature of candidate

List of castes of the United Provinces included in the "Depressed Classes"

1 Throughout the Provinces—

Agariya	Hari
Aheriya	Hela
Badi	Kanjar
Badhak	Kalabaz
Baheliya	Kharot
Bajaniya	Kharwar (<i>except</i> Benbanasi)
Bajgi	Khatik
Balahar	Kol
Balmiki	Korwa
Banmanus	Lalbegi
Bansphor	Majhwar
Barwar	Nat
Basor	Pankha
Bawariya	Parahiya
Beldar	Pasi
Beriya	Patari
Bongali	Rawat
Chamar	Saharya
Chero	Sanaurhiya
Dabgar	Sansiya
Dhanger	Shulpkar
Dhanuk (Bhangi)	Bhantu
Dharkar	Kapariva
Dhobi	Bhuiya
Dom	Karwal
Domar	Tharu
Gharami	Bhuyar
Ghasiya	Khairaha
Gaul	Turaiha
Habura	Boriya

2 Throughout the Province *except* in the Agra, Meerut and Rohilkhand divisions—Kori

FORM No. 7.

Certificate of Nationality, Domicile and Residence.

Certified that _____

father of _____
legal guardian
 who is a candidate for the Entrance Examination to the
Civil Engineer
Overseer class of the Thomason College of Civil Engineer-
Draftsman
 ing, Roorkee resides at _____ District _____

- (i) The father is (or, if dead, was at the time of his death) domiciled in the United Provinces
- (ii) The father being deceased the legal guardian is domiciled in the United Provinces

Place _____

District Magistrate

Dated _____

District _____

Last of castes of the United Provinces included in the " Depressed Classes "

1 Throughout the Provinces—

Agariya	Hari
Aheriya	Hela
Badi	Kanjar
Badhuk	Kalabaz
Baheliya	Kharot
Bajaniya	Kharwar (<i>except Benbansi</i>)
Bajgi	Khatik
Balahar	Kol
Balmiki	Korwa
Banmanus	Lalbegi
Bansphor	Majhwar
Barwar	Nat
Basor	Ponkha
Bawariya	Parahiya
Beldar	Pasi
Beriya	Patar
Bengali	Rawat
Chamar	Saharya
Chero	Sanaurhiya
Dabgar	Sansiya
Dhanger	Shulpkar
Dhanuk (Bhang)	Bhantu
Dharkar	Kapariya
Dhobi	Bhuiya
Dom	Karwal
Domar	Tharu
Gharami	Bhuyar
Ghasiya	Khairaba
Gaul	Turahi
Habura	Boriya

2 Throughout the Province *except* in the Agra, Meerut and Rohilkhand divisions—Kori

FORM No 7.

Certificate of Nationality, Domicile and Residence.

Certified that _____

father
legal guardian of _____

who is a candidate for the Entrance Examination to the
Civil Engineer

Overseer
Draftsman class of the Thomason College of Civil Engineer-

ing, Roorkee resides at _____ District _____

(i) The father is (or if dead was at the time of his death) domiciled in the United Provinces

(ii) The father being deceased the legal guardian is domiciled in the United Provinces

Place _____

District Magistrate

Dated _____

District _____

List of castes of the United Provinces included in the "Depressed Classes"

1 Throughout the Provinces—

Agariya	Hari
Aherya	Hela
Badi	Kanjar
Badhik	Kalabaz
Babeliya	Kharot
Bajaniya	Kharwar (except Benbansi)
Bajgi	Khatik
Balahar	Kol
Balmiki	Korwa
Banmanus	Lalbegi
Bansphor	Majhwar
Barwar	Nat
Basor	Pankha
Bawariya	Parahiya
Beldar	Pasi
Beriya	Patar
Bengali	Rawat
Chamar	Saharya
Chero	Sanaurhiya
Dabgar	Sansiya
Dhanger	Shilpkar
Dhanuk (Bhang)	Bhantu
Dharkar	Kapariya
Dhobi	Bhuiya
Dom	Karwal
Domar	Tharu
Gharami	Bhuiyar
Ghasiya	Khairaha
Gaul	Turaia
Habura	Boriya

2 Throughout the Province except in the Agra, Meerut and Rohilkhand divisions—Kori

FORM No 7.

Certificate of Nationality, Domicile and Residence.

Certified that _____

father of _____
legal guardian

who is a candidate for the Entrance Examination to the

Civil EngineerOverseer class of the Thomason College of Civil Engineer-Draftsman

ing, Roorkee resides at _____ District _____

(i) The father is (or, if dead, was at the time of his death) domiciled in the United Provinces

(ii) The father being deceased the legal guardian is domiciled in the United Provinces

Place _____

District *Meghna*

Dated _____

District _____

*The rules in this Circular are liable to revision without notice
in view of possible changes in the Course of Study,
orders of Government, etc.*

[C I R C U L A R]

THOMASON COLLEGE OF CIVIL ENGINEERING, ROORKEE.

These rules apply to admissions in 1912 and until further notice

OVERSEER CLASS

1 The Overseer Class has been constituted at the College to meet the requirements of the Subordinate Engineering Service of the Public Works Department of the United Provinces and of the public demands for a class of men trained as overseers

2 Candidates for admission to this class must not be under 16 or above 21 years of age on June 1, immediately preceding the entrance examination in which they wish to appear.

Overage candidates are allowed to sit for the competitive entrance examination provided they are not over 25 years of age on June 1, immediately preceding the entrance examination, in which they wish to appear. Should they qualify, they will be allowed to enter the College provided the number of candidates of the correct age, who qualify, is less than the sanctioned strength of the class. Such candidates will not be eligible for academic prizes or United Provinces Government scholarships

The name and age of a candidate will be taken from the certificate granted by the Board of High School and Inter-

*The rules in this Circular are liable to revision without notice
in view of possible changes in the Course of Study,
orders of Government, etc.*

[C I R C U L A R]

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Overage candidates are allowed to sit for the competitive entrance examination provided they are not over 25 years of age on June 1, immediately preceding the entrance examination, in which they wish to appear. Should they qualify, they will be allowed to enter the College provided the number of candidates of the correct age, who qualify, is less than the sanctioned strength of the class. Such candidates will not be eligible for academic prizes or United Provinces Government scholarships

The name and age of a candidate will be taken from the certificate granted by the Board of High School and Inter-

mediate Education or University as the case may be No alteration in them will be recognized except in the case of purely clerical errors

3 The class is intended primarily for Europeans, Anglo-Indians and Indians residents within the United Provinces excluding States within it Extra provincial candidates will be admitted only if vacancies remain after the admission of the United Provinces candidates An annual contribution is charged for extra provincial candidates This contribution is based on the actual expenditure of the preceding financial year and will be intimated by the Principal on inquiry being made to him Where a candidate is willing to bear this contribution himself, the application for permission to appear in the admission examination may be submitted direct to the Principal, otherwise it should be submitted through the Government of the Province or State in which the candidate resides The Government or State forwarding such an application should clearly state that in the event of the candidate obtaining in the examination a place which entitles him to admission the Government or State concerned will be willing to pay the above contribution The United Provinces Government may, in special cases, waive this contribution

4 Applications for admission should reach the Principal, complete in all respects, not later than April 15, nor before February 1, preceding the entrance examination, accompanied by a statement of—

The date of birth of the candidate

NOTE 1—To constitute residence in a particular province or state the parent or guardian of a candidate for admission to this College must have definitely settled and resided there for a period of three years

NOTE 2—Since Government departments in the United Provinces demand a domicile certificate signed by the District Magistrate before overseers are appointed guardians are advised to furnish this certificate with the application This will obviate further correspondence and possible rejection of the application

The school or schools at which he has been educated

The profession, situation, relationship and residence of his father or guardian

N B—Great care should be taken to ensure that forms are complete in every respect. Incomplete forms are liable to be rejected. Forms of application with instruction showing how they should be filled in may be detached from the circular when required.

5 Every candidate will be required to produce testimonials (copies properly certified by a Government gazetted officer will be accepted), which will not be returned of good moral conduct signed by the instructor under whom he has been educated, or of some other superior under whom he may have been employed or brought up, and these testimonials should have reference especially to his conduct during the two years immediately preceding his application for admission.

6 The qualifying tests for admission to the entrance examination will be the High School examination conducted by the Board of Education, United Provinces or the School Leaving Certificate examination of this province or the Matriculation examination of the Allahabad University (or equivalent examination of other provinces at present recognized by the United Provinces Board of High and Intermediate Education for purposes of High School). The Senior Cambridge examination or the High School Final examination under the Code of Regulations for European schools in force in Bengal, Bombay and Madras Presidencies, the United Provinces, Punjab or Central Provinces will also be recognized. Those candidates who have appeared for any of the examinations noted as the qualifying tests before the date of the College entrance examination but the results of which have not been published before the last date for sub-

mission of their applications to the Principal, are allowed to sit provisionally for the College entrance examination. Such candidates must, however, furnish with their application forms a certificate signed by the Head of their school or College, stating that they have so appeared. Their marks will be excluded from the result sheet if the information of their passing the qualifying tests are not communicated before the publication of the results of this College.

7 The examination fee of Rs 10 should be deposited in any Government Treasury in United Provinces under head

XXVI—Education, E General—Miscellaneous, Civil Engineering College Roorkee Examination Fee", through treasury chalang which are obtainable from the Treasury. The receipted treasury chalan must be attached to the application form. Fee by postal money orders will be acceptable from stations where there are no Government treasuries. Until the fee or the receipted Treasury chalan has been received by the Principal the candidate's application will not be registered. In no circumstances will this fee be refunded.

8 A medical certificate must be furnished on the prescribed printed form enclosed in the circular, no other will be accepted. Students of the Draftsman class when appearing for the Entrance examination of this class need not submit a fresh medical certificate.

NOTE—The fee prescribed by Government for this examination is Rs 4 which must be paid by the candidate direct to the Civil Surgeon or the Commissioned Medical Officer prior to the examination.

9 The candidate must be acquainted with both the English language and the modern Indian languages and able to speak, read and write them with tolerable ease and accuracy. He must pass an entrance examination in the following subjects, which will be held during the first week in June at the following centres, viz., Roorkee, Agra, Lucknow, Naini Tal, Allahabad and at any other centres at the discretion of the Principal.

SUBJECTS OF EXAMINATION AND MARKS

	Full marks	Time allowed
English Composition (Essay)	50	2½ hours
" " " " " "	50	½ hour.
" " " " " "		
to solve arithmetical problems	100	3 hours.
Algebra. Fundamental laws and definitions The methods of addition, subtraction, multiplication and division, H C I., L C M., factors, fractions, and simple and elementary simultaneous equations	100	3 "
Geometry Euclid, Books I and II, and simple riders	100	3 ..
Drawing Printing, scales and simple geometrical figures (as in the Thomason College, Roorkee, Drawing Manual, Part I, Chapters I—IV)	100	3 ..
Modern Indian Languages—Translation into English of extracts in the Nastaliq or Nagri character from any easy Hindi or Urdu book and of easy English sentences into colloquial Hindi or Urdu and grammatical questions	100	3 ..
Total Marks	600	

N B—One third of the marks in each subject and one half of the total marks are required for passing

10 The entrance examination is competitive, and those who stand highest on the list of passed candidates (only to the number of available vacancies, which is for the present fixed at 40), will be selected for admission to the College. Provided the candidates pass the qualifying entrance examination, eight places will be reserved for Moslems, one for scheduled castes and one for other minority communities. Any candidate who, after being duly notified fails to join the College on the day fixed for the reopening of the session or who before that date fails to obtain from the College authorities definite permission to join on some later date will forfeit his right to admission.

11 No degree certificate, etc., obtained by him at any other institution will entitle a candidate to enter the College, nor will it exempt him, in whole or in part, from the entrance examination above detailed.

12. Each examination is complete in itself, and no credit for marks gained in one examination is carried on to any other examination. A candidate who has failed in, or withdrawn from, an examination after his name has been registered, and presents himself for examination on a subsequent occasion, must undergo the full examination and furnish a fresh fee and certificates. No replies will be given to any telegram or letter enquiring the results of the entrance examination. A copy of the printed result will be sent to each candidate when published.

13. In this class a College fee of Rs.6 a month during the session will be charged to students admitted through the entrance examination. All students of this class will be provided with unfurnished quarters in the College hostels at a monthly rent of Re.1; but no member of a student's family is allowed to reside in them with him.

The hostels have been electrified, the charges for current being annas four per unit. Students must provide their own fans.

14. There will be 8 scholarships of the value of Rs.25 per mensem, each tenable for the nine months of the College session, awarded annually on the results of the entrance examination and on the first year's work and examinations out of which one is reserved in each of the 2 years for a student from the scheduled castes. All scholarships are reserved for United Provinces candidates.

15. Each student will make his own arrangements for the purchase of the necessary class books and instruments. The probable expenses are shown in the appendices. No one should present himself for admission who is not prepared to meet all charges, as well as those of feeding himself, and dressing in decent and clean apparel.

16 Any student failing to pay his College dues * or to make sufficient progress in study, or whose conduct is unsatisfactory, will be suspended or ultimately removed from the College. The parent or guardian of any student so suspended or removed shall be held responsible for the payment of any debts whatsoever which may have been contracted while the student was in the College. Although every precaution is taken to prevent students from running into debt, the College authorities are in no way to be considered responsible for such debt.

17. The course is of 2 years duration. The College session commences on or about October 16, and ends on July 15, following. At the end of the first session examinations are held, and a student, who fails to attain the standard prescribed for the first year course will be given one more chance to repeat his studies at the College in the first-year course. Such a student will not be eligible to compete for the United Provinces Government scholarships or academic prizes. For admission to the second year, a student has to obtain at least 33 per cent. of the marks allotted to each group and 50 per cent. of the grand total. At the close of the second session the final examination will be held.

18 The College vacation will be from July 15 to October 16 or thereabouts. Students will not be allowed to stay in the College hostels during the vacation.

19 Upon successful completion of the course two classes of certificates are awarded as follows

I. The Higher Certificate, awarded to students

NOTE—*The words College dues include—

- (i) College fee,
- (ii) Rent and conservancy
- (iii) Rent of College furniture,
- (iv) Electric Current charges,
- (v) Recreation fund subscription and cost of articles purchased from recreation stores
- (vi) All dues in connexion with Overseer Class Club,
- (vii) All dues of College Dairy, College shoe maker, College shop-keeper, College tailor, College sweet seller and College stores.

obtaining at least 50 per cent in each group and 60 per cent of the total marks

- II The Ordinary Certificate, awarded to students obtaining at least 33 per cent in each group and 50 per cent of the total marks

20 Every endeavour will be made to give unpaid practical training to all the United Provinces students but no guarantee in this respect can be given

21 The list of the text books, etc., used in the class, is given on pages 114 115 and 116 The prices quoted are approximate Books are available at the Book Depot in the College

22 Drawing instruments, drawing boards, T squares, etc., are procurable in the bazar Every student must provide himself with these at his own cost

23 Any student who is expelled from the College for misconduct will not be allowed to appear in any examination conducted by the College

24 It is desirable that every student should be able to swim before joining the College

25 Students will not be permitted to appear for any external examinations during their College course

26 All students have to be in possession of the booklets of Standing Orders and Course of Study A plea of ignorance for the breach of any of the former is not accepted A copy of each of these booklets will be issued to each new student on arrival and the cost recovered in his first bill Students therefore should not provide themselves with out-of-date copies

Any student requiring an extra copy of the Course of Study may obtain it on payment from the Assistant Superintendent, Government Press, Roorkee Branch, Roorkee

Memorandum of the Expenses of Students of the Overseer Class

The following information is published for the guidance of parents and guardians, and for their assistance in determining the probable expenses of a course of instruction at the College

Economical management is aided as far as possible by the College authorities

It must be clearly understood that students cannot be permitted to remain in the College if their dues* of any kind are not paid promptly on demand

The probable expenses of a student while at the College are shown under two heads, viz (i) the initial expenses of each yearly term, and (ii) the monthly current expenses

Details of Expenses

Each student upon first joining the College and at the commencement of the second year has to incur certain

*NOTE—The words College dues include

- (i) College fees
- (ii) Rent and conservancy
- (iii) Rent of College furniture
- (iv) Electric current charges
- (v) Recreation fund subscription and cost of articles purchased from recreation stores
- (vi) All dues in connexion with Overseer Class Club
- (vii) All dues of College Dairy College shoemaker College shop keeper, College tailor, College sweet seller and College stores

non recurring expenses The details of these with approximate costs, as far as it is possible to give them, are stated below Every student has to have certain text books of his own for each year's work These books are obtainable at the College Book Depot at prices $12\frac{1}{2}$ per cent lower than published prices The costs quoted take this into consideration The lists of these books are given on pages 115 116

Details	Price	Remarks
<i>Upon first joining</i>	Rs a	
Box of drawing instruments		} Prices too variable to be given.
T-square 36"		
Set square 45° and 60°		
Brushes and colours	..	
Two drawing boards (24" x 36" and 24" x 18")	.	
One case of architectural scales		
One case of engineer's and surveyor's scales	..	
One Chesterman steel woven tape 100 feet	.	
One workshop tool set comprising 1 steel L square 1 steel rule 12" 1 pair inside callipers 1 pair outside callipers		
Text-books, say	46 8	
Level books each	1 4	
Survey field books each	0 12	
Survey note books each	3 0	
<i>Entrance fee</i>		
Overseer Class Club and recreation	3 0	
<i>Commencement of second year</i>		
Text books say .. .	46 0	

Monthly expenses
(9 months only)

Item	Price	Remarks
	Rs a	
College fee	6 0	} Fixed obligatory charges
Pent	1 0	
Subscription Overseer Class Club recreation and boat ng	5 0	
C. Here magazine subscription	0 4	} If fan used, Rs 5
Electric energy	3 0	
Cook, say	1 8	} Approx mate only
Servant say	1 8	
Dhob say	1 8	
Mess r _e hire of furniture etc		Whatever a student may make it

List of essential text books

Part ulars

Cost
Rs a

OVERSEER CLASS—I YEAR

Roorkee Treatise on Earthwork	1 1 9
Building Construction, Advanced Course —Mitchell	14
Building Construction Elementary Course —Mitchell	4 14
Elementary Trigonometry —Loney	3 1
* Elementary Mensuration —Perpoint Parts I and II	3 14
Elements of Statics and Dynamics	6 8
Roorkee Treatise on Surveying —Part I	3 1
Heat Engines —Low	10 0
Class Book of Physics —Gregory and Hadley Parts III IV and V (1 volume) Parts VI VII and VIII (1 volume) at Rs 2 each	4 0
* Logarithmic Tables —College Manual	1 8
Total	48 8

List of essential text-books—(concluded)

Particulars	Cost
Rs. a.	
OVERSEER CLASS,—II YEAR	
“ Building Mechanics ”—Sheppard	5 8
“ Military Engineering (Volume V) Roads, 1935 ” ..	5 0
“ Roorkee Treatise on Railways ”	5 1
“ Roorkee Treatise on Bridges ”	7 0
“ Roorkee Treatise on Irrigation ”—Volume I ..	4 6
“ Sewers and Sewerage ”—Whyatt . ..	1 12
“ U. P. Irrigation Technical Paper no. 1 (Design of Channels) ”—G. Lacey	0 14
“ Roorkee Treatise on Estimating ” ..	6 9
“ Elementary Hydraulics for Technical students ”—F. C. Lea	4 14
“ Elements of Reinforced Concrete ” by Adams ..	5 0
Total ..	<u>46 0</u>

Notes for the guidance of candidates when filling in application forms for Entrance Examination for classes in the Thomason College.

General

IMPORTANCE

It is impressed upon candidates that failure to observe these instructions implicitly must result in prolonged correspondence and possibly the rejection of the application. All forms when sent to this College should be pinned together. All forms must be kept clean.

NAME OF CANDIDATE

The full name of the candidate *and not initials* must be shown on all papers and it is important to note that only the name as entered in the educational certificate must be used. Spelling of name should be the same in all the forms as are in the educational certificate or as will appear in the gazette in case of provisional candidates. No additions to or omission from that name will be permitted. In the case of Europeans or Anglo Indians the production of a birth or baptismal certificate in support of additional Christian or sur names will not be recognized.

DATE OF BIRTH

The date of birth as entered in the application forms must be same as that entered in the educational certificate which must be certified. The production of a birth certificate or horoscope will not be accepted as proof for any change from the date given in educational certificate.

GENERAL

Separate forms should be filled in for each Examination i.e. for Civil Engineer, Overseer or Draftsman classes.

*Particular***MORAL CHARACTER CERTIFICATE**

It should generally be signed by the Head Master or the Principal of the institution in which the candidate has studied, failing this by a gazetted officer other than the relation of the candidate. The words last two years should be crossed out only when the candidate has been in two institutions in which case two separate certificates should be obtained and furnished. These should relate to the period he has been in each institution and the period should be stated.

EDUCATIONAL CERTIFICATE

A word to word copy of the Intermediate Examination certificate in case of Civil Engineer class and the High School Examination in the case of the Overseer class candidates verified by a government gazetted officer should be furnished. If the candidate has only appeared at the Examination a certificate from the Principal or the Head Master stating that he has appeared at the Intermediate Examination or the High School Examination showing the year in which he has appeared should be furnished. The result of such examinations should be communicated to the Principal as soon as they are published. Full designation of the verifying officer and the date on which he verifies the certificate should be given under his signatures.

MEDICAL CERTIFICATE

It should be signed by a Commissioned Medical Officer belonging to an All India Service or by an officer in charge of a Civil Station (i.e. Civil Surgeon). A certificate signed by a Medical Officer in charge of a Civil Hospital is not sufficient unless the officer comes within one of the above categories. Marks of identification should be caused to be entered by the medical officer granting the certificate.

If the eye sight is defective the Medical Officer granting the certificate should be requested to quote the form noted on reverse

AGE CERTIFICATE.

It should be signed by the officers named in the form. Name of school from the records of which the date of birth has been entered should be given in the place provided for it. Date of birth should be written and not the word 'correct' etc

STATEMENT OF AGE, EDUCATION, ETC.

It should be carefully completed. In column 3 place of domicile of father or if father deceased that of the guardian should be filled in. Particulars of father as required in column 5 should be filled fully. If father is deceased full Particulars of guardian should be filled in and the fact of the father's death should be stated. It should generally be signed by the Head Master or the Principal and place and date to be written in the left hand side. One of the certificates at bottom to be crossed out and the other initialed.

Where permanent address is required permanent address should be given and not a temporary one.

DOMICILE.

In order to obviate lengthy correspondence all claims to United Provinces domicile should be supported by a certificate from the District Magistrate in the enclosed form. In accordance with the rules laid down in the Circular 1st Certificate in the form should be signed by the District Magistrate of the district in which the candidate's father or guardian is domiciled.

MADAN GOPAL SARDANA

ROORKEE

RAI BAHADUR,

October , 1941

Principal.

APPENDICES

Forms required to accompany a candidate's application for admission to the Thomason College, Roorkee, are shown below

- (1) Moral certificate
- (2) Educational certificate *
- (3) Medical certificate
- (4) A certificate of the recorded date of birth
- (5) Statement showing age education etc of candidate
- (6) Certificate of Nationality, domicile and residence

*Copies verified by a Government gazetted officer will be accepted

FORM No 1

Moral Certificate required from candidates for admission to
the Entrance Examination of Civil Engineer and
Overseer Classes of the Thomason College, Roorkee

Certified that _____ bears
a good moral character and has done so for the last two years

STATION _____

Date _____

*Signature and designation of In-
structor under whom educated,
or superior under whom employed
or brought up*

FORM No. 2

Copy of Educational Certificate to accompany application of
candidate for admission to the Thomason College,
Roorkee.

Verified

Signature of any Gazetted Officer of Government.

FORM No 3

Medical Certificate to accompany application of candidate for admission to the Thomason College, Roorkee.

I CERTIFY that I have carefully examined—
 _____, that his eye sight is of the standard prescribed * that he is fully robust, and his constitution is sound, and that he has no disease bodily or mental infirmity, unfitting him now or likely to unfit him in the future for active out-door service in the Public Works Department
 Marks of identification

Station _____ Signature _____

Dated _____ Designation _____

NB—The above certificate must be signed by a Commissioned Medical Officer or by a Medical Officer in charge of a Civil Station within a month before date of submission and must include a description giving clearly the personal marks of identification of the Candidate who has been medically examined. No other certificate will be accepted nor will application be entertained unless the above rule is strictly complied with.

*I leave quote the no of para of the eye sight of the Candidate is according to one of the prescribed paras on reverse

Standard of eye-sight required for admission to the Department of Public Works of India.

1 If myopia in one or both eyes exist, a candidate may be passed, provided the ametropia does not exceed 3 $\frac{1}{2}$ D, and if, with correcting glasses not exceeding 3 $\frac{1}{2}$ D, the acuteness of vision in one eye equals $\frac{6}{9}$, and in the other $\frac{6}{6}$, there being normal range of accommodation with the glasses

2 Myopic astigmatism does not disqualify a candidate provided the lens or the combined spherical and cylindrical lenses required to correct the error of refraction, does not exceed 3 $\frac{1}{2}$ D the acuteness of vision in one eye, when corrected being equal to $\frac{6}{9}$, and in the other $\frac{6}{6}$, together with normal range of accommodation with the correcting glasses, there being no evidence of progressive disease in the choroid or retina

3 A Candidate having total hypermetropia not exceeding 4 D is not disqualified provided the sight in one eye (when under the influence of atropine) equals $\frac{6}{9}$, and in the other equals $\frac{6}{6}$, and with + 4 D glasses or any lower power

4 Hypermetropic astigmatism does not disqualify, provided the lens or combined lenses required to cover the error of refraction, do not exceed 4 D, and that the sight of one eye equals $\frac{6}{9}$, and the other $\frac{6}{6}$, with or without such lens or lenses

5 A Candidate having a defect of vision arising from nebula of the cornea is disqualified if the sight of one be less than $\frac{6}{12}$. In such a case the better eye must be emmetropic. Defects of vision arising from pathological or other changes in the deeper structures of either eye, which are not referred to in these rules, may exclude a Candidate

6 A Candidate is disqualified if he be unable to distinguish the principal colours (achromatopsia)

7 Paralysis of one or more of the exterior muscles of the eyeball disqualifies a Candidate for it

FORM No 4

University, College or School Certificate of age required in
case of Candidates for the Entrance Examination of the
Thomason College, Roorkee, United Provinces.

Certified that the date of birth of _____,
son of _____ as entered in the records
of the _____ (a) { University
College
School
is _____

Signature of—

STATION
Date

(a) { Registrar _____ University
Head Master _____ School.
Principal _____ College

(a) Two of these to be struck out

FORM No 6

Statement of age Education etc. to accompany application for admission to the _____ Class of the Thomason College Roorkee

Name (if candi- date)	Date of birth as furnished to the highest institution of these three— (1) Univer- sity (2) College (3) School	Province of domicile of the father and if father not living, of guardian where he must have definitely settled and resided for a period of three years	School or College at which educat- ed	Name, profession, situation, resi- dence and caste of father, or if father not living, of guardian, showing relationship of latter to candidate	Centre selected in case of candi- dates of United Prov- inces for the C E Class	Remarks
--------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------	---------

I am willing to be vaccinated on admission

I live _____

Date _____

Signature of candidate

Signature of Head Master or forwarding officer

Permanent address } _____
 } _____

Certificate in case of candidates for admission to the Overseer Class

Certified that I have not studied for more than three months in the
Civil Engi

Certified that I have not appeared for any Entrance Examination
of the Thomason College, Roorkee

Since seats are reserved in the Civil Engineer and Overseer classes for United Provinces candidates of the minority communities which include depressed classes also it would be in the interest of the candidates if they give their castes prominently should they belong to any noted on reverse of the form.

Signature of candidate

List of castes of the United Provinces included in the "Depressed Classes"

1 Throughout the Provinces—

Acharya	Hari
Acharya	Hita
Bairi	Kanjari
Beldar	Kalabar
Balva	Kharot
Bajwa	Kharwar (except Bunkansi)
Baj	Khatik
Bakhar	Kol
Balmiki	Korwa
Banman	Lalbegi
Banjari	Majhwar
Bharwar	Nat
Bhara	Pankha
Bharwara	Parahiya
Bhakar	Pasi
Bharya	Patari
Bengali	Rawat
Chatri	Sajarya
Chero	Samaurhiya
Dahzar	Sansiva
Dharwar	Shulphar
Dharuk (Bharagi)	Bhantu
Dharwar	Kapuriya
Dhar	Bhuiya
Dhar	Karwal
Domar	Tharu
Gharma	Bhuiyar
Ghasiya	Kharaha
Gaul	Turaha
Habura	Boriya

2 Throughout the Provinces *except* in the Agra, Meerut and Rohilkhand divisions—Kori

FORM No. 7

Certificate of Nationality, Domicile and Residence.

Certified that _____

father
legal guardian of _____
 who is a candidate for the Entrance Examination to the
Civil Engineer
Overseer
Draftsman class of the Thomason College of Civil Engineering,
 Roorkee resides at _____, district _____

- (i) The father is (or, if dead, was at the time of his death) domiciled in the United Provinces
- (ii) The father being deceased the legal guardian is domiciled in the United Provinces

Place _____

District Magistrate

Dated _____

District _____

The rules in this Circular which have been approved by Government in letter No G-XVIII—39(4S), dated February 21, 1933, are liable to revision without notice in view of possible changes in the Course of Study, orders of Government, etc.

[C I R C U L A R]

**THOMASON COLLEGE OF CIVIL ENGINEERING,
ROORKEE**

1941

These rules apply to admissions in 1942 and until further notice

DRAFTSMAN CLASS

1 For admission to the Draftsman Class an entrance examination will be held annually at the Thomason College during the first week of June. Applications for admission must be submitted to the Principal not later than April 15, nor before February 1 preceding. The subjects for the examination will be (1) Arithmetic, (2) English, (3) the preparation of simple drawing scales and italic printing, and (4) Geometry and very simple Mensuration. The maximum marks for each subject are 100. The standard in these subjects (except Drawing) will be that of the upper middle section of a Recognized Anglo Vernacular School. The first ten on the list of passed candidates will be selected annually for admissions to the Draftsman Class. No entrance fee will be charged for the examination. Indians of

pure Asiatic descent, whose domicile* is the United Provinces excluding States within the United Provinces are only eligible for admission to the class. One third of the marks in each subject and one-half of the total marks are required for passing.

2. The minimum qualifying test for permission to appear for the entrance examination will be a pass in the Upper Middle Section of a Recognized Anglo Vernacular School

Candidates must submit a certificate signed by the Head Master of the school in which they have been educated, showing that they possess the minimum educational qualifications and are of good character, industrious and have an aptitude for Drawing

3 All candidates must furnish a certificate of sound health and physical fitness on the prescribed printed form enclosed in the circular. No other form will be accepted

NOTE—The fee prescribed by Government for this examination is Rs 4 which must be paid by the candidate direct to the Civil Surgeon or the Commissioned Medical Officer prior to the examination

Forms of application with instructions showing how they should be filled in may be detached from the circular when required

5 The entrance examination will take place at the same time as the entrance examinations for other classes in the College and accepted candidates should present themselves for the entrance examination on the date which will be notified to them; all are required to be present on that date, otherwise they will forfeit the right of admission. Their admission will depend on the results of the examination and they should join the class on October 16 or on the date notified to them.

* **NOTE**—To constitute residence in a particular province or state, the parent or guardian of a candidate for admission to the Thomason College Roorkhee, must have definitely settled and resided there for a period of three years

6 Full discretion rests with the Principal to remove any student who appears to be unlikely to profit by the training. A removal under this rule will imply no reflection on the student's character.

7 The College session for the Draftsman Class commences on October 16 each year or thereabouts and ends on July 15 in the following year.

8 Candidates will pay no fees and will be provided with free quarters, if available, but no member of a candidate's family will be allowed to reside in them with him.

9 No stipends will be given, but not more than twelve scholarships of Rs 4 per mensem are available and shall be awarded to the top four students in each session of the Draftsman Class who are eligible and are of United Provinces domicile and that if there be any session's class in which the number of United Provinces eligible students is less than four the unawarded scholarships shall lapse to Government. No scholarship will be payable while a student is on leave or during the vacation. Out of the above scholarships three are reserved for students from the scheduled castes one in each year, tenable during the College Session.

10 Instruments and materials will be supplied free for the use of students, but remain the property of the College, and all work turned out during working hours will also be the property of the College.

11 On completion of the course of training, students will be granted a certificate as "Draftsman," with 'qualified in Simple Estimating,' in the case of those students only who attain the requisite standard in the subject. The course of training for the Draftsman Class will extend over three years, but any candidate who gains admission, and, in the opinion of the Principal, is initially a good draftsman, may be allowed

to join the second year class. The College does not undertake to find employment for successful students, though it will give all the assistance it can. Certificate holders are expected to find employment for themselves in the open market.

12 Any student who is expelled from the College for misconduct will not be allowed to appear in any examination conducted by the College.

13 All students have to be in possession of the booklets of Standing Orders and Course of Study. A plea of ignorance for the breach of any of the former is not accepted. A copy of each of these booklets will be issued to each new student on arrival and the cost recovered in his first bill. Students, therefore, should not provide themselves with out-of-date copies.

ROORKEE
October , 1941

MADAN GOPAL SARDANA,
Principal

Notes for the guidance of candidates when filling in application forms for Entrance Examination for classes in the Thomason College.

General

IMPORTANCE.

It is impressed upon candidates that failure to observe these instructions implicitly must result in prolonged correspondence and possibly the rejection of the application. All forms when sent to this College should be pinned together. All forms must be kept clean

NAME OF CANDIDATE.

The full name of the candidate *and not initials* must be shown on all papers, and it is important to note that only the name as entered in the educational certificate must be used. Spelling of name should be the same in all the forms as are in the educational certificate or as will appear in the gazette in case of provisional candidates No additions to or omissions from that name will be permitted. In the case of Europeans or Anglo-Indians the production of a birth or baptismal certificate in support of additional Christian or surnames will not be recognized

DATE OF BIRTH.

The date of birth as entered in the application forms must be the same as that entered in the educational certificate which must be certified. The production of a birth certificate or horoscope will not be accepted as proof for any change from the date given in educational certificate

GENERAL.

Separate forms should be filled in for each examination i.e. for Civil Engineer, Overseer or Draftsman classes

*Particular.***MORAL CHARACTER CERTIFICATE.**

It should generally be signed by the Head Master or the Principal of the institution in which the candidate has studied, failing this by a gazetted officer other than the relation of the candidate. The words "last two years" should be crossed out only when the candidate has been in two institutions in which case two separate certificates should be obtained and furnished. These should relate to the period he has been in each institution and the period should be stated.

EDUCATIONAL CERTIFICATE

A word to word copy of the Intermediate Examination certificate in case of Civil Engineer class and the High School Examination in the case of the Overseer class candidates verified by a government gazetted officer should be furnished. If the candidate has only appeared at the Examination a certificate from the Principal or the Head Master stating that he has appeared at the Intermediate Examination or the High School Examination showing the year in which he has appeared should be furnished. The result of such examinations should be communicated to the Principal as soon as they are published. Full designation of the verifying officer and the date on which he verifies the certificate should be given under his signatures.

MEDICAL CERTIFICATE.

It should be signed by a Commissioned Medical officer belonging to an all India Service or by an officer in charge of a Civil Station (i.e. Civil Surgeon). A certificate signed by a Medical officer in charge of a Civil Hospital is not sufficient unless the officer comes within one of the above categories. Marks of identification should be caused to be entered by the medical officer granting the certificate. If the eye sight is

defective. The medical officer granting the certificate should be requested to quote the paragraph noted on reverse.

AGE CERTIFICATE

It should be signed by the officers named in the form. Name of school from the records of which the date of birth has been entered should be given in the place provided for it. Date of birth should be written and not the word "correct" etc.

STATEMENT OF AGE, EDUCATION, ETC.

It should be carefully completed. In column 3 place of domicile of father or if father deceased that of the guardian should be filled in. Particulars of father as required in column 5 should be filled fully. If father is deceased full Particulars of guardian should be filled in and the fact of the father's death should be stated. It should generally be signed by the Head Master or the Principal and place and date to be written in the left hand side. One of the certificates at bottom to be crossed out and the other initialed.

Where permanent address is required, permanent address should be given and not a temporary one.

DOMICILE

In order to obviate lengthy correspondence all claims to United Provinces domicile should be supported by a certificate from the District Magistrate in the enclosed form. In accordance with the rules laid down in the Circular 1st Certificate in the form should be signed by the District Magistrate of the district in which the candidate's father or guardian is domiciled.

ROOPKEE.

MADAN GOPAL SARDANA,

RAI BAHADUR,

October , 1941

Principal.

APPENDICES

Forms required to accompany a candidate's application for admission are enclosed in the circular and may be detached when required

- (1) Certificate of character and education, etc (*vide* paragraph 2)
- (2) Medical certificate (*vide* paragraph 3)
- (3) Age certificate
- (4) Statement showing age, education, etc of candidate
- (5) Domicile certificate

FORM No 1

Moral Certificate required from candidates for Admission to the Entrance Examination of Draftsman Class of the Thomason College, Roorkee.

Certified that _____
bears a good moral character, has passed the Upper Middle Section of a Recognized Anglo-Vernacular School, is industrious and has an aptitude for Drawing.

STATION _____ *Signature of Head Master of School*
Date _____ *in which educated.*

FORM No 2

Medical Certificate to accompany application of candidate for admission to the Thomason College, Roorkee.

I CERTIFY that I have carefully examined _____, that his eye sight is of the standard prescribed* that he is fairly robust, and his constitution is sound, and that he has no disease, bodily or mental infirmity unfitting him now or likely to unfit him in the future, for active out-door service in the Public Works Department †

Marks of identification

Station _____

Signature _____

Date _____

Designation _____

NB—The above certificate must be signed by a Commissioned Medical Officer or by a Medical Officer in charge of a Civil Station within a month before date of submission and must include a description giving clearly the personal marks of identification of the Candidate who has been medically examined. No other certificate will be accepted nor will application be entertained unless the above rules be strictly complied with

*Please quote the no of para if the eye sight of the Candidate is according to one of the prescribed paras on reverse

Standard of eye-sight required for admission to the Department of Public Works of India.

1 If myopia in one or both eyes exist, a Candidate may be passed provided the ametropia does not exceed 3.5 D, and if with correcting glasses not exceeding 3.5 D, the acuteness of vision in one eye equals $\frac{6}{9}$, and in the other $\frac{6}{6}$, there being normal range of accommodation with the glasses.

2 Myopic astigmatism does not disqualify a Candidate provided the lens or the combined spherical and cylindrical lenses required to correct the error of refraction, does not exceed 3.5 D, the acuteness of vision in one eye, when corrected, being equal to $\frac{6}{6}$, and in the other $\frac{6}{6}$ together with normal range of accommodation with the correcting glasses, there being no evidence of progressive disease in the choroid or retina.

3 A Candidate having total hypermetropia not exceeding 4 D is not disqualified provided the sight in one eye (when under the influence of atropine) equals $\frac{6}{9}$, and in the other equal $\frac{6}{6}$, and with + 4 D glasses or any lower power.

4 Hypermetropic astigmatism does not disqualify, provided the lens or combined lenses required to cover the error of refraction, do not exceed 4 D, and that the sight of one eye equals $\frac{6}{9}$, and the other $\frac{6}{6}$ with or without such lens or lenses.

5 A Candidate having a defect of vision arising from nebula of the cornea is disqualified if the sight of one eye be less than $\frac{6}{12}$. In such a case the better eye must be emmetropic. Defects of vision arising from pathological or other changes in the deeper structures of either eye, which are not referred to in these rules, may exclude a Candidate.

6 A Candidate is disqualified if he be unable to distinguish the principal colours (achromatopsia).

7 Paralysis of one or more of the exterior muscles of the eyeball disqualifies a Candidate for it.

FORM No 2

Medical Certificate to accompany application of candidate for admission to the Thomason College, Roorkee.

I CERTIFY that I have carefully examined———, that his eye sight is of the standard prescribed* that he is fairly robust, and his constitution is sound, and that he has no disease, bodily or mental infirmity unfitting him now or likely to unfit him in the future, for active out door service in the Public Works Department †

Marks of identification

Station———

Signature———

Date———

Designation———

NB—The above certificate must be signed by a Commissioned Medical Officer or by a Medical Officer in charge of a Civil Station within a month before date of submission and must include a description giving clearly the personal marks of identification of the Candidate who has been medically examined. No other certificate will be accepted nor will application be entertained unless the above rules be strictly complied with

*Please quote the no. of para. if the eye sight of the Candidate is according to one of the prescribed paras on reverse

Standard of eye-sight required for admission to the Department of Public Works of India

1 If myopia in one or both eyes exist a Candidate may be passed provided the ametropia does not exceed 3.5 D. and if with correcting glasses not exceeding 3.5 D, the acuteness of vision in one eye equal $\frac{6}{9}$ and in the other $\frac{6}{6}$ there being normal range of accommodation with the glasses.

2 Myopic astigmatism does not disqualify a Candidate provided the lens or the combined spherical and cylindrical lenses required to correct the error of refraction, does not exceed 3.5 D. the acuteness of vision in one eye when corrected being equal to $\frac{6}{6}$ and in the other $\frac{6}{6}$ together with normal range of accommodation with the correcting glasses, there being no evidence of progressive disease in the choroid or retina.

3 A Candidate having total hypermetropia not exceeding 4 D. is not disqualified provided the sight in one eye (when under the influence of atropine) equals $\frac{6}{9}$, and in the other equal $\frac{6}{6}$ and with + 4 D. glasses or any lower power.

4 Hypermetropic astigmatism does not disqualify, provided the lens or combined lenses required to cover the error of refraction do not exceed 4 D., and that the sight of one eye equals $\frac{6}{9}$, and the other $\frac{6}{6}$ with or without such lens or lenses.

5 A Candidate having a defect of vision arising from nebula of the cornea is disqualified if the sight of one eye be less than $\frac{6}{12}$. In such a case the better eye must be emmetrope. Defects of vision arising from pathological or other changes in the deeper structures of either eye which are not referred to in these rules, may exclude a Candidate.

6 A Candidate is disqualified if he be unable to distinguish the principal colours (achromatopsia).

7 Paralysis of one or more of the exterior muscles of the eyeball disqualifies a Candidate for it.

List of castes of the United Provinces included in the "Depressed Classes"

1 Throughout the Provinces —

Agariya	Harī
Aheriya	Hela
Badi	Kanjar
Badhuk	Kharot
Baheliya	Kharwar (<i>except Benbansi</i>)
Bajaniya	Khatik
Bajgi	Kol
Balahar	Korwa
Balmiki	Lalbegi
Banmanus	Majhwar
Bansphor	Nat
Barwar	Pankha
Basor	Parahiya
Bawariya	Pasi
Beldar	Patarī
Beriya	Rawat
Bengali	Saharya
Chamar	Sansaurhiya
Chero	Sansiya
Dabgar	Shilpkar
Dhangar	Kalabaz
Dhanuk (Bhangī)	Bhantu
Dharkar	Kapariya
Dhobi	Bhuiya
Dom	Karwal
Domar	Tharu
Gharami	Bhuyar
Ghasiya	Khauraha
Gaul	Turaiha
Habura	Boriya

2 Throughout the Province *except* in the Agra, Meerut and Rohilkhand divisions ————— Kori

FORM No. 5

Certificate of Nationality, Domicile and Residence.

Certified that _____

Father
Legal Guardian of _____
 who is a candidate for the Entrance Examination to the
Civil Engineer
Overseer class of the Thomason College of Civil Engineer-
Draftsman
 ing, Roorkee resides at _____ District _____

- (1) The father is (or, if dead, was at the time of his death) domiciled in the United Provinces
- (2) The father being deceased the legal guardian is domiciled in the United Provinces

Place _____

District Magistrate.

Dated _____

District _____

CIVIL ENGINEER CLASS.

1940 11



COURSE OF STUDY AND SYLLABUS.

CIVIL ENGINEER CLASS, 1941-42

The chief points kept in view in arranging this course of study are to ensure the necessity for steady work throughout the whole course, and to co-ordinate the instruction given in each subject so as to lead up to a thorough test of the qualifications necessary for a Civil Engineer of as high a grade as a college training can produce, special attention being paid to the local conditions of India. This test is represented by the Project and the Final Examinations.

Four-tenths of the total marks at the end of the 1st year are carried forward in each group to the 2nd year. Similarly, seven-tenths of the total marks at the end of the 2nd year are carried forward to the 3rd year. Continuous steady work is necessary to ensure qualification at the end of each year.

TERMS AND EXAMINATIONS.

First Term—

College Attendances —From October 16 to a variable date in February

Mid Sessional Examinations —For all the 3 year students students start in the last week of January.

Second Term—

College Attendances—Start on the Monday following the Mid Sessional Examinations and continue till about the first Saturday in June

Revision in Quarters—During Entrance Examinations

Final Examinations—Start in the last week of March

The Course of Study extends over three years and comprises the following subjects grouped under seven heads —

GROUP	I	Mathematics
"	II	General Civil Engineering
"	III	Special Civil Engineer
"	IV	Applied Science
"	V	Mechanical and Electrical Engineering
"	VI	Projects
"	VII	Physique and General Fitness

The marks each student has to obtain to qualify for admission to the second and third year and to obtain the College Diploma in Civil Engineering, awarded upon completion of his third year are as follows

(a) For admission to the second year, the first year students are required to obtain 33 per cent of the marks allotted to each Sub Group for written examinations and practical work and 50 per cent of the total marks. Those who fail to qualify as above will be given one more chance for admission by repeating the first year class. Such students will not be eligible to compete for the United Provinces Government Scholarships or academic prizes

(b) To return to the College at the end of the second year the students are required to obtain 33 per cent of the marks allotted to each Sub Group for written examinations and practical work in that year (i.e. in the second year) and 50

per cent of the total marks for the two years, i.e. of the full marks for the second year together with the reduced marks of the first year

- (c) To pass out of the College at the end of the third year, the students are required to obtain 33 per cent of the marks allotted to each Sub Group for written examination and practical work in that year (i.e. the third year), and 50 per cent of the total marks for the three years, i.e. of the full marks for the third year together with the reduced marks for the first and second years

- (d) The ordinary Diploma is awarded to students who qualify as above and obtain less than 66 per cent of the total marks

The Honours Diploma is awarded to students who qualify as above and obtain 66 per cent or more of the total marks. Students of second and third year who fail to qualify as above will neither be allowed to return to the College nor will they be awarded the Diploma in Civil Engineering as the case may be. Should their failure however be due to prolonged absence through sickness or other circumstances beyond their control such special cases will be considered and decided upon their merits

The Examinations and the marks assigned to them are shown on the following pages

EXAMINATION AND MARKS

THEORETICAL

(1st term)		(2nd term)	
	Marks		Marks
Strength of materials	50	Strength of Materials	100
Mathematics	50	Mathematics	75
Mechanics	50	Mechanics	100
Building Construction	50	Graphic Statics	50
Physics	75	Building Construction	100
Chemistry	75	Drawing	100
Mechanical Engineering		Physics	75
(Prime Movers)	50	Chemistry	75
Survey	50	Mechanical Engineering	
		(Prime Movers and Theory	
		of Machines)	100
		Communications	100
	<hr/> 450 <hr/>		<hr/> 875 <hr/>

PRACTICAL

Mechanics Laboratory	50	Mechanics Tutorial	50
Levelling	50	Physics Practical Examination	110
		Chemistry	100
		Field Engineering	50
		Drawing Plates	300
		Workshops	150
		Machine Drawing Plates	50
		Chain Survey	50
	<hr/> 100 <hr/>		<hr/> 850 <hr/>

TOTALS

	Marks
Practical	950
Theoretical	1,325
	<hr/> 2,275 <hr/>

EXAMINATION AND MARKS

THEORETICAL

(3rd term)		(4th term)	
	Marks		Marks
Strength of Materials and Theory of Structures	100	Mathematics	100
Mathematics	75	Mechanics	100
Mechanics	100	Theory of Structures	100
Hydraulics	100	Design of Structures (buildings and bridges)	100
Communications	100	Reinforced Concrete	100
Machinery Drawing	50	Irrigation	100
Prime Movers	50	Hydraulics	100
Theory of Machines	50	Estimating	100
Electrical Engineering	100	Survey	100
Geology and Mineralogy	75	Water Supply and Sanitary Engineering	100
		Prime Movers and Theory of Machines	100
		Electrical Engineering	100
	<hr/> 600 <hr/>		<hr/> 1200 <hr/>

PRACTICAL TESTING LABORATORY (STRENGTH OF MATERIALS TO BE AWARDED IN WORKSHOPS)

Survey Camp	20	Mathematics Tutorial	50
Machinery Drawing plates	50	Mechanics Tutorial	50
Geology Practical Examination	75	C. P. Designs (Structures Hydraulics R. C. and Irrigation)	300
Electrical Engineering Laboratory	50	Hydraulics Laboratory	50
Testing Laboratory (to be awarded in the workshops)	50	Mechanical Engineering Laboratory	100
		Electrical Engineering Laboratory	100
	<hr/> 425 <hr/>		<hr/> 700 <hr/>

TOTALS

	Marks
First year carried forward (4/10 of 2275)	910
Second year	3125
	<hr/>
Grand Total	4035
	<hr/>

EXAMINATION AND MARKS

THEORETICAL

(5th term)

Marks

Theory and Design of Structures (Buildings)	100
Theory and Design of Structures (Bridges)	100
Reinforced Concrete	100
Irrigation	100
Survey I	100
Survey II	100
Water Supply and Sanitary Engineering	100
Prime Movers	100
Theory of Machines	100
Electrical Engineering	100

 1,000

(6th term)

Marks

C E Designs (Structures, Irrigation and Reinforced Concrete)	300
Notes on Visits to works	50
Astronomy and Curves (Practical Examination)	100
Process Work	50
Mechanical Engineering Laboratory	50
Electrical Engineering Laboratory	50

 600

Minor Project ..	300
Major Project ..	700
Games and Sports, U. T. C.	800

 1,800

TOTALS

	Marks
First and second years' marks (7/10 of 4025)	2,818
Third year's marks	1,600
Projects	1,000
Physique and General Fitness	800
	<hr/> 6,218 <hr/>

APPENDIX B
Statement of hours and marks on 12 hours a week basis

S no	Groups	Sub-groups	Subject	Number of hours per week						Total	Number of marks allotted
				I	II	III	IV	V	VI		
1	Mathematics		Term	17	16	10	10	17	10		
			Weeks								
			Mathematics Mechanics Strength of Materials	7½ 5 1½	2½ 3 2	2 2 2	1 2 1			12½ 16½ 87½	750 500 200
2	General Civil Engineering	(a) Theory and Design of Structures	Theory of structure			3	1½			8½	200
			Design of structures				6	6		12½	450
			Reinforced Concrete				2	1		100	700
		(b) General	Building Construction		1					60	250
			Estimating			1½	1½			0	100
			Surveying	4	1	6	1	2½		180½	600
3	Special Civil Engineering		Drawing	5	7					177	150
			Hydraulics			1½	1			70	350
			Irrigation				1½	1		10	300
			Water supply and Sanitary Engineering				2	3		83	200
			Communications								
					2½	2½				65	200

Group I.—MATHEMATICS.

- (i) Plane Co-ordinate Geometry
- (ii) Solid Geometry
- (iii) Calculus
- (iv) Differential Equations
- (v) Mechanics
- (vi) Graphics

MATHEMATICS

(First Term—3½ hours weekly)

Plane Co-ordinate Geometry —Equations to straight lines circles simple properties of conics equations of the second degree

Calculus —Limits derivatives standard forms rules for differentiation successive differentiation differentials and small errors signs of the derivative mean value theorem extreme for functions of one variable Integration is inverse of differentiation standard forms simpler methods of integration

(Second Term—2½ hours weekly)

Elementary Solid Geometry —Simple relations of planes, straight lines and spheres elementary treatment of simple surfaces of revolution

Calculus.—Partial and total differentiation Elementary definite integrals Application of the derivative to plane curves referred to rectangular and polar coordinates, intersection of lines and curves tangents, normals asymptotes, points of inflections, tracing of simple curves

(Third Term—2 hours weekly)

Calculus.—Definite integrals (continued), Quadrature and rectification of curves, intrinsic equations, volumes and surface areas of the surfaces of solids of revolution Approximate integration, simpson's rule

Elementary Differential Equations.—Formation; equations of the first order and first degree, integrating factors

(Fourth Term—1 hour weekly)

Linear differential equations of the first order, clairaut's form Linear differential equations with constant coefficients, particular integrals and their determination in simple cases Some simple applications

MECHANICS.

(First Term—5 hours weekly)

Statics.—Coplanar forces acting on a rigid body, moment of forces, friction, conditions of equilibrium, centres of gravity

Graphical Methods.—Triangle and polygon of forces, funicular polygons, stresses in just rigid and pin-jointed frames

Dynamics.—Relative velocities, tangential and normal velocities and accelerations, simple tharmonic motion

Mechanics Laboratory.—Work in the mechanics laboratory is an integral part of the course. The experiments are designed to illustrate the principles of elementary mechanics to give practice in the use of apparatus and in accurate measurement

(Second Term—3 hours weekly)

Statics.—Work, principle of virtual work, deflections of just rigid and pin jointed frames, displacement diagrams and Mohr's rotation or correction diagrams

Hydrostatics.—Static pressure and static head, gauge and absolute pressure units total hydrostatic pressure on immersed surfaces centres of pressure of plane areas, conditions of equilibrium of floating bodies metacentric heights

Dynamics —Laws of motion angular momentum, moments of inertia

(Third Term—2 hours weekly)

Dynamics —Equations of motion principles of energy and momentum, motion along a curve motion about a fixed axis Impulsive motion

(Fourth Term—2 hours weekly)

Simple problems in forces in three dimensions Lagrangian equations and allied problems

Stability of systems with one degree of freedom flexible chains Motion in resisting media Vibrations of systems having one degree of freedom including vibrations of beams, whirling of shafts vibrations due to torsion etc etc

Group II.—GENERAL CIVIL ENGINEERING.

- (i) Strength of Materials
- (ii) Theory of Structures
- (iii) Design of Structures
- (iv) Theory and Design of Reinforced Concrete
- (v) Building Construction
- (vi) Drawing
- (vii) Engineering Specifications and Quantities

STRENGTH OF MATERIALS.

(First Term—2½ hours weekly)

Physical properties of the common materials used in Engineering Relation of Stress and strain, stress strain diagrams, Young's modulus, complementary shear stress, modulus of rigidity, extension and lateral contraction, Poisson's ratio, composite bars, temperature stresses Stresses in cylindrical and spherical shells Resilience Stresses due to suddenly applied loads

(First Term—1½ hours weekly)

Principal and combined stresses Relation between elastic constants Euler-Bernoulli Theory of bending of straight beams Distribution of shear stress in beams Torsion of circular shafts Stress and deflection of close coiled helical springs

Graphical and analytical methods, for calculating bending moments and shearing forces due to dead loads in statically determinate beams

(Third Term—2 hours weekly)

Curvature slope and deflection of simply supported beams and cantilevers graphical methods and deflection curves, simple theory of struts subject to axial and eccentric loads, empirical strut formulae

Testing Laboratory.—Phenomena in tests to destruction in tension compression shear and torsion Load lines, elastic limit ultimate strength ductility Forms of test pieces and devices for holding them influence on strength and percentage extension Testing machines and instruments Methods employed for deducing most probable values of elastic constants from various tests Effect of hardening tempering annealing and over strain hardness and resistance to shock and their measurement fluctuating and impact stresses fatigue and fatigue tests Theories of strength

(Fourth Term—1 hour weekly)

Further problems in deflection of simply supported beams and struts, combined bending and direct stresses, eccentric loads torsion combined with bending

THEORY OF STRUCTURES.

(Third Term—3 hours weekly)

Bending moments and shearing forces due to travelling loads in beams and plane frames Influence Lines, Theory of riveted joints Theory of Earth pressure and foundations, stability of masonry and brickwork structures like retaining walls, gravity dams and arches

(Fourth Term—1½ hours weekly.)

Bending moments, shearing forces, curvature, slope and deflection of encastre' and continuous beams. Theory of hinged and rigid arches

(Fifth Term—2 hours weekly.)

Strain energy analysis Theory of suspension bridges. Theory of bents; struts with lateral loads and end moments. Stresses in thick cylinders. Further problems in the Theory and Design of Structures

DESIGN OF STRUCTURES.

(Fourth Term—3 hours weekly)

Buildings.—Roof Trusses —Various types of trusses, consideration of loads, wind pressure, Materials and coverings employed Determination of sizes of various members

Foundations.—Methods for finding out the bearing capacity of soils Trial pits and borings Footings Grillage foundations

Masonry retaining walls Masonry and steel chimneys

MASONRY AND STEEL RESERVOIRS

(3 hours weekly)

Bridges.—Preliminary —Selection of site, Calculation of Waterway, Piers, Various types of foundations, depth of scour, Protection works, Floor and curtain walls. Various types of Temporary and Permanent Bridges.

Superstructures.—Consideration of loads, impact, wind pressure, Masonry bridges and culverts, Plate girder, types of floors.

(Fifth Term—3 hours weekly)

Buildings —Design of a redundant frame Influence line diagrams for fixed and continuous beams three pinned parabolic semi-elliptic and segmental arches

Design of a masonry and a R.C. dome

(3 hours weekly)

Bridges —Lattice girder swing bridges steel arched bridges Lateral and sway bracings Suspension bridges

THEORY AND DESIGN OF REINFORCED CONCRETE

(Fourth Term—2 hours weekly)

Nature uses properties advantages and disadvantages of Reinforced Concrete over other type of construction Theory and design of rectangular and T beams with single reinforcement simply supported Shear and diagonal tension shear reinforcement Bond Slabs simply supported Columns axially loaded

(Fifth Term—4 hours weekly)

Doubly reinforced beams continuous beams Slabs continuous on two and four sides Combined bending and direct stresses

Design of slab and beam floors columns eccentrically loaded Rigid frames Column footings combined footings piles reinforced concrete pipes rifts Retaining walls Reservoirs Investigation of stresses in reinforced concrete arches Reinforced brickwork design of beams floors and walls Details of construction of Reinforced Concrete and Reinforced brickwork centering shuttering and laying

BUILDING CONSTRUCTION.

(First Term—2 hours per week)

Materials.—*Stone*—Classification and varieties Characteristics Suitability for structures Quarrying, blasting and dressing

Bricks, tiles, firebricks and terra cotta—Composition of earth Moulding drying and burning Characteristics and essential features

Lime and cement—Method employed in manufacture Essential features British standard specifications for cement

Timber—Growth and structure Felling, converting and seasoning Decay and methods of preservation Common defects Characteristics of timber commonly used in India

Miscellaneous—Preparation of mortars Mixing, laying and curing concrete Plastering and pointing White and colour washing Other building materials such as asbestos and galvanized iron sheets slates, lead, copper, brass paints varnishes distempers etc

Masonry—*Stone masonry*—Definitions of terms in common use Ashlar, block-in-course and rubble masonry Precautions against settlement Arches

Brickwork—General principles and precautions Bonds Arches

(Second Term—2½ hours weekly)

Carpentry and Joinery.—Joints and fastenings Beams wooden floors, partitions, doors, windows, centres and staging

Roofs and Floors—Timber, steel and flat roofs Roof coverings of tiles, slabs, galvanized iron and asbestos sheets Brick, stone, tiled and concrete floors

Miscellaneous—Flues and chimneys Stairs and staircases Painting and decorations Fire resisting and sound-

proof construction Heating and cooling of buildings. Electrical installations and lifts Lightning conductors

Field Engineering.—Use of spars Knots and lashings Blocks and tackle Holdfasts, guys and winches Use and construction of derricks, gins and trestles Gantries Scaffolding shoring underpinning and centering Ground, tracing Working plans for foundations on level and sloping ground Laying out buildings in the ground

SURVEYING.

(First Term—4 hours weekly)

Levelling.—The use and adjustment of the level Different types of levels Levelling staves their types and markings Precautions required in levelling Methods of booking and reduction of levels Comparative merits of reduction methods Definitions of terms used in levelling Sources of error. Curvature and refraction effects Differential levelling Profile levelling Reciprocal levelling Allowable closing error The Abney level Boning rods During the first half session students will do practical levelling in the fields

Chain and Compass Surveying —(*Chain Surveying* — Equipment Ranging and chaining lines Engineer's chain Gunter's chain Customary limits of error Reconnaissance Selection of stations Keeping up the Field Book Obstacles to chaining and ranging, how overcome Offsets Optical square Plotting the Survey

Compass Surveying —The Prismatic Compass Constructional details and its uses Bearings and angles Magnetic and True meridian Obtaining meridian by sun's shadow Variation of the compass Designation of bearings Comparative merits of whole circle and quadrantal reckoning Back bearings Local attraction Elimination of effects of

local attraction Sources of error Limits of precision
Adjustment of closing error

(Second Term—1 hour weekly)

Theodolite Traversing.—The Theodolite Use and adjustment Parts for horizontal measurement Parts for vertical measurement Details of the Theodolite Measurement of angles Repeating angles Conditions established by adjustment Errors in non adjustable parts Elimination of these errors Definition of a Traverse Gale's Traverse system Conditions fulfilled in a closed traverse Methods of traversing by inward angles and by bearings Relative merits of these methods Computations for obtaining co-ordinates Closing error and its adjustment Bowditch's rule for adjustment Advantages of plotting by co ordinates Precautions in plotting Omitted measurements and their calculations The subtense bar and its use The Theodolite used as a Tacheometer Stadia wires Stadia constants Reduction of readings of inclined sights

Plane Tabling—Equipment for plane-tabling Advantages and disadvantages Maxims for plane-tabling Order of working Methods of plane tabling Fixing of position The three point problem The two point problem Traversing with the plane table Tacheometric plane tabling Equipment Use of tangent clinometer in conjunction with the planetable

(Third Term—6 hours weekly)

Contours and Contouring—Representation of three dimensions Uses of contour plans and maps Contour lines Contour interval Characteristics of contours Methods of contouring Direct method Indirect methods Inter-polation of contours

Minor Triangulation —Grades of triangulation Length of base line Connection of base line to triangulation Selection of stations Reconnaissance Signals and brief descriptions Base line measurements and corrections applied to same Brief description of rigid and flexible base line measuring apparatus as used in Geodetic surveys Observation of angles Zero station Setting to Zero Change of Zero Cautions observed in taking a round of angles Recording observations Intersected points Heights Computations Supplementary and satellite stations Completion of Traverse

At the end of the 3rd term students will be taken into camp for three weeks and do a minor triangulation and fill in details with the planetable using the Tangent clinometer for heights and contouring

(Fourth Term—1 hour weekly)

Curves —Designation of curves Elements of curves Different methods of setting out curves Simple and compound curves Vertical curves Transition curves Double centre method for laying down a straight line Setting out pegs for earthwork Application of curves to highways and railways

Field Astronomy —Introduction The earth as an astronomical body The celestial sphere Definitions Astronomical system of co-ordinates Spherical trigonometry and formulae as required for practical Astronomy Napier's rule of circular parts Use of the Nautical Almanac Time Sidereal apparent and solar Equation of time Relation between mean and sidereal time Acceleration and retardation Relation between latitude and longitude Standard time

(Fifth Term—2½ hours weekly)

Astronomy (continued)—Time by ex meridian observations Time by meridian transit Time by equal altitudes of a star Time by altitude of the sun Corrections to observations Azimuth Azimuth by ex meridian observations Azimuth by a circumpolar star at elongation Azimuth by Polaris time and latitude being known Azimuth by observations to sun Convergency correction how applied Latitude Determination of latitude by Polaris Description of sundials How to make one

Tacheometrical Surveying—Stadia system Principle of Tacheometer Determination of constants Distance and Elevation formulae Horizontal sights Inclined sights with staff vertical Internal focusing telescope in Tacheometry Instrumental constants Tangential system The subtense Bar method

General Engineering Surveys—Surveying requirements when preparing a project for a building, bridge, road canal or railway

DRAWING COURSE (REVISED)

(First Term—5 hours weekly)

Manipulation of Draftsman's instruments Lettering Mouldings Conventional signs Symbols and colour Colouring Projections Orthographic Isometric and Perspective Intersection of planes Interpenetration of solids Development of surface Drawing of simple details of buildings

(Second Term—7 hours weekly)

Drawing of building and engineering constructional details Taking measurements of actual buildings and drawing

plans, elevations, and sections of same. Drawing plans elevations, Sections to $\frac{1}{2}$ " scale from general specifications and freehand sketches

ENGINEERING SPECIFICATIONS AND QUANTITIES.

(Third Term—1½ hours per week)

Listing off quantities required for engineering structures, abstracting and billing. Estimating quantities of earthwork in roads, canals etc

(Fourth Term—1½ hours per week)

Plinth area and cubical contents estimates. Analysis of rates for common items of construction. General and detailed specifications

Contract—The preparation of tenders and the invitation for same. The various kinds of contracts, and the documents required for each kind. Preparation of running bills and final bills. Measurement books and their use. Completion plans

Group IV.—SPECIAL CIVIL ENGINEERING.

- (i) Hydraulics
- (ii) Irrigation
- (iii) Water Supply
- (iv) Sanitary Engineering
- (v) Communications

HYDRAULICS

(Third Term—1½ hours weekly)

Irrigation —Various modes of fluid motion Principle of continuity Velocity of discharge from small orifices Hydraulic head Coefficients of velocity, contraction and discharge Bernoulli's theorem Venturi meter Pitot tube Flow through large orifices free and submerged Flow over rectangular triangular and trapezoidal notches and weirs Velocity of approach Francis formula for weir Cippoletti Weir Broad Crested weir Flow under a variable head

Viscous and turbulent flow Critical velocity Rate of discharge under viscous flow Laws of fluid friction Coefficient of surface friction Hydraulic gradient Loss of head in pipes due to friction Secondary losses due to sudden enlargement, Sudden contraction and other causes Discharge through mouth pieces Formulae for turbulent flow Parallel flow through pipes Transmission of power through pipes Nozzles Diameters of pipes for maximum kinetic energy of jets General formula for flow of water in open channels Channel cross sections of greatest efficiency

(Fourth Term—4 hours weekly)

Irrigation—General theory of flow of water in open channels Uniform and non uniform flow Critical depth Chezy Bazin Manning and Kutter formulae Application to design of canals and distributaries Silt transportation formulae and their application to design of regume channels Theory of scour as applied to rivers Flow through syphons Fall line and draw Notches on falls Water cushions Afflux and back water curves Standing wave and its height Flood absorptive formulae in tanks Overflow Weirs Modules Methods of gauging discharges in channels

Power—Utilization of water as a source of power Hydraulics of power plants from source of delivery to turbine

Water Supply—Darcy Chezy Bazin and Kutter formulae for turbulent flow under working conditions Limiting, mean and critical velocities Distribution of velocities in pipes and relation between diameter and discharge Economical diameter of pipe lines Initiation and stoppage of motion in a pipe Water hammer and surge chambers Losses at bends elbows and tees Time of discharge through long pipe lines branch mains and multiple supply Flow through bye pass and pipes coupled in parallel Meters syphons pitometer pumps rams air valves relief valves, etc Calculation of compensation water Dimensional homogeneity and dynamical similarity

Hydraulic Machines—Pressure of jets on stationary and moving plates Pressure on curved vanes Work done by jets on moving blades Work done by reaction of jets Reciprocating centrifugal and turbine pumps Pelton wheel Inward and outward flow turbines Impulse and reaction turbines Description of different types of turbines Determination of vane angles Efficiencies of turbine plant Governing Rams Mills Hydraulic lifts and brakes

IRRIGATION.

(Fourth Term—1½ hours weekly)

Earthwork.—Definitions, stability and properties of soils
Measurement and setting out Sections and volumes
Drainage Puddling Consolidation Dressing and turfing
Lift and Lead

Irrigation.—Definition of irrigation Conditions necessary silating its introduction Principal Indian crops, their seasons, and benefits derived from irrigation Depth of water required to ensure maturity

Wells—As a source of irrigation, lined and unlined wells Sub soil water reservoirs Duty of wells Tube wells

Canals—Perennial canals Duty of canal water Depths and running days Supplies utilized and lost Silt and its effect on irrigation channels, its prevention Kennedy channels Design of channels from Garrett's diagrams Evaporation absorption and percolation Rise in subsoil water level Water logging Lining of canals

Inundation canals general description and their special features, Location of off take to avoid silting

(Fifth Term—4 hours weekly)

Perennial canals—Sources of supply General description of Indian rivers Location and design of headworks in boulder, trough and delta stages of a river Description and general design of Headworks Weirs and Undersluices Head regulators, Supply Channels Afflux bunds Temporary diversion bunds Various types of permanent weirs Drop shutters, Automatic gates Stoney sluice gates

Design and Alignment of Canals—Locating water-heds and aligning canals Falls Bridges Regulators Locks Escape Roads Distributaries and Minors Outlets

Cross drainage works—Maximum rate of run-off from catchments Inlets Superimpositions Level Crossings Aqueducts Syphon Reservoirs

River training works—Spurs Groynes Bell bunds Mattresses Aprons

Storage Works—Tanks Total run off from catchments Tank Filling Outlets Sluices Reservoirs for storage of water Earthen dams Theory and design of masonry dams and weirs Dams with discharge sluices Syphon dams Leagues Flood absorptive capacity of reservoirs

WATER SUPPLY

(Fourth Term—2 hours per week)

Water Supply—History and development Sources of supply Standard of purity for public water supplies Quantity supplied *per capita* Intakes Pumping and gravity schemes Water towers Purification Slow and rapid filtration Sterilization Softening Pipes fittings and appurtenances Distribution of water Detection and prevention of waste Metering Rules for framing water supply schemes

(Fifth Term—2 hours per week)

Sanitary Engineering—*Sanitation*—Site and orientation of buildings Damp-proof courses Ventilation Air conditioning House drainage Conservancy and water borne systems Sanitary appliances Construction and testing of house drains Pail depots Public latrines and urinals

Prevention of malaria incidental to engineering construction

Sewerage—Separate and combined systems Forms cross-sections, capacities and inclinations of sewer

Construction of sewers Calculation of storm water Storm water overflows, Lifts, ejectors and pumps for sewage Manholes and lamp eyes Flushing of sewers Rules for the design of sewerage and drainage systems in India

Sewage disposal—Essentials in the treatment of sewage Selection of site for disposal works Disposal by dilution and land treatment Simple sedimentation, chemical precipitation and bacterial tanks Activated sludge process Sludge disposal

Refuse—Collection and disposal of refuse

Specifications—Specifications for the construction of sanitary works

COMMUNICATIONS.

(*Second Term—2½ hours per week*)

Roads—History and development Alignment Traffic census and cross sections Gradients Curves Subsoils, under drainage, soling and formation Earth, *kankar* and stone roads Temporary roads Hill roads Collection and tests for materials Dust prevention Bitumen, asphalt, tar and cement roads Pavements Wear and maintenance of roads Road construction machinery Preparation of road projects Arboriculture

(*Third Term—2½ hours per week*)

Railways.—History and development Alignment Preliminary investigations Reconnaissance Preliminary and location surveys Grades Cross sections in embankment and cutting Curves The gauge problem Formation ballast, sleepers, rails, joints and fastenings Points and

crossings Plate laying Railway bridges Level crossings
Tunnels Station requirements and layout Wear of rails
Creep of rails Mountain railways Maintenance of the
permanent way Rules for preparation of railway projects

Group IV.—APPLIED SCIENCE.

- (i) Physics
- (ii) Engineering Chemistry
- (iii) Mineralogy and Geology

PHYSICS.

(First Term—3½ hours weekly)

Electricity and Magnetism.—Potential and capacity, condensers, production and propagation of wireless waves principles of wireless transmission and reception, receiving set Temperature coefficients, alloys and their uses, shunts, wheatstone method of measuring resistance, conditions for accuracy and sensitiveness, measurement of potential, current and resistance by potentiometer Back E M F, secondary cells lead and alkaline Electric power and energy, relations between electric, mechanic and heat units Application of heat effect to arc and incandescent lamps Magnetic lines of forces, electromagnetic relations C G S units Moving coil galvanometer ammeter and voltmeter Magnetic circuit, magnetization of iron, measurement of permeability, hysteresis Electromagnetic induction, coefficient of induction Lenz's and Fleming's laws

Heat.—Scales of temperature pyrometers, self recording devices, ready methods of finding expansion coefficients Precaution against expansion in engineering practice, applications of expansion Application of fusion Total heat of steam, moisture in steam and its determination Vapour pressure, hypsometer, flash point, storage of volatile liquids Heat insulating material and its testing Ventilation of buildings draught in chimneys

(Second Term—3 hours weekly)

Heat (continued.)—Radiation and laws of cooling. Laws of perfect gas. General thermodynamic principles and scale of temperature. Calorific value of fuels and its determination.

General.—Commercial forms of weighing machines, commercial methods of measuring density, hydrometers. Hydraulic press. Portion barometer, aneroid as altimeter. Water and Air pumps. Pressure gauges.

Light.—Photometry, parabolic and cylindrical mirrors, totally reflecting prisms, prismatic and cylindrical lenses. Chromatic and spherical aberration, methods of minimising these. Sextant, telescope, microscope eye-pieces, prism binoculars and range finders.

Sound.—Reflection and absorption of sound. reverberation acoustic demands in a room. reverberation time. treatment of acoustically bad rooms.

ENGINEERING CHEMISTRY.

(First Term—3½ hours weekly)

Colloids and their properties. Phase rule and its application. Water its natural sources suitability for various purposes, pollution and its effects purification. Gypsum plasters. Plain and hydraulic limes. Cements, i.e. Normal and M.F.S. Portlands. Aluminous cements etc. their composition, preparation and properties, setting and hardening of mortar and cements. Clay effects of impurities, its various products i.e. porcelain, pottery and bricks etc. Decay of timber, methods used in preventing decay.

A study of the following metals, i.e. copper, aluminium, lead, zinc, chromium, manganese and their more important compounds. Properties and composition of non-ferrous alloys, i.e. white metals, light metals, brass and bronze. Iron and

steel, their manufacture and properties, effects of impurities corrosion of iron and steel, steel alloys, cooling curves, metallography. Preservation of structural materials

(Second Term—3½ hours weekly)

Petroleum, its origin, composition, properties and uses
 Bitumen and Asphalt Their composition, properties and uses
 Coal, its distillation products and their uses Road tars, their composition, properties and uses Tests of tars and asphalt
 Paints Varnishes Preparation and use of common pigments

MINERALOGY AND GEOLOGY.

(Second Term—1 hour weekly)

Geology.—Elementary discussion of the geological agents their influence in effecting geological changes and the records left by them Simple description of the principles of structural geology Sedimentary and igneous rocks Use of fossils

(Third Term—3 hours weekly)

Geology —Elementary discussion of the general principles of historical geology including a brief description of the geological record of the history of the earth with a short discussion of the chief characteristics of the following divisions

- (1) Archæan
- (2) Palæozoic
- (3) Mesozoic
- (4) Tertiary
- (5) Post Tertiary

A short description of the stratigraphical geology of India

Mineralogy.—Crystal form and symmetry, division into systems with their principal characteristics, classification based upon (a) chemical composition, (b) physical properties i.e. specific gravity, hardness, cleavage, fracture and phenomena relating to light Simple description and identification of rock forming minerals, ores, vein tones, salts and gems

Group V.—MECHANICAL AND ELECTRICAL ENGINEERING.

- (i) Prime Movers
- (ii) Theory of Machines
- (iii) Machine Drawing
- (iv) Workshops
- (v) Electrical Technology

MECHANICAL ENGINEERING (PRIME MOVERS.)

(First Term—2 hours weekly)

Elementary treatment of the production and properties of metals

Boilers —Shell, Firetube and Watertube types Boiler fittings

Boiler accessories Steam pipe lines

Steam Engine —Simple slide valve engine engine details
High speed engines, Indicators and Indicator diagrams condensing Engines, Superheating, Steam Jacketting, Compounding

(Second Term—1 hour weekly)

Internal combustion Engines —Four stroke, Two stroke Oil Engines, Petrol engines, Diesel engines

Steam Turbines —De Laval, Parsons, Curtis

Machine Tools —Lathes, Planing machines, Drilling machines, Milling Machines, Universal Grinders. Special Tools

steel, their manufacture and properties, effects of impurities
corrosion of iron and steel, steel alloys, cooling curves
metallography Preservation of structural materials

(Second Term—3½ hours weekly)

Petroleum, its origin, composition, properties and uses
Bitumen and Asphalt Their composition, properties and uses
Coal, its distillation products and their uses Road tars, their
composition, properties and uses Tests of tars and asphalt
Paints, Varnishes Preparation and use of common pigments

MINERALOGY AND GEOLOGY.

(Second Term—1 hour weekly)

Geology.—Elementary discussion of the geological agents
their influence in effecting geological changes and the records
left by them Simple description of the principles of structural
geology Sedimentary and igneous rocks Use of fossils

(Third Term—3 hours weekly)

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of historical geology, including a brief description of the
geological record of the history of the earth with a short discussion
of the chief characteristics of the following divisions

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Group V.—MECHANICAL AND ELECTRICAL ENGINEERING.

- (i) Prime Movers
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- (v) Electrical Technology

MECHANICAL ENGINEERING (PRIME MOVERS)

(First Term—2 hours weekly)

Elementary treatment of the production and properties of metals

Boilers —Shell Firetube and Watertube types Boiler fittings

Boiler accessories Steam pipe lines

Steam Engine —Simple slide valve engine engine details High speed engines Indicators and Indicator diagrams condensing Engines Superheating, Steam Jacketting Compounding

(Second Term—1 hour weekly)

Internal combustion Engines —Four stroke Two stroke Oil Engines Petrol engines Diesel engines

Steam Turbines —De Laval Parsons Curtis

Machine Tools —Lathes Planning machines Drilling machines, Milling Machines Universal Grinders Special Tools

(Third Term—2 hours weekly)

Thermodynamics—Ideal cycles, Entropy, Entropy diagrams, Compressors

Steam Engine—Theory, Compounding, Combustion, Heat Transmission, Mollier diagrams, Superheating, Steam Jacketting Testing

(Fourth Term—2 hours weekly)

Internal combustion Engines—Principles of working, Effect of compression Strength of mixture, Ignition, Fuels and their calorific value Testing of engines

(Fifth Term—2 hours weekly)

Steam Turbines—Flow of steam, Impact of steam, Classification of steam turbines, Determination of vane angles steam consumption Effect of vacuum, superheat and initial pressure Balancing of end thrust, Bleeding Testing of turbines

Refrigerating machinery Principles of working, choice of working substance comparison of results of different machines

(1½ hours weekly)

Laboratory Practice.—

MECHANICAL ENGINEERING (THEORY OF MACHINES.)

(Second Term—1 hour weekly)

Kinematics of machines—Kinematic chains and their inversion Analysis of motion, Angular, Reciprocating and straight line motions, Toothed gearing, Trains of wheels and epicyclic gears, Belts and belting Rope and chain drives, Cams

(Third Term—2 hours weekly)

Dynamics of machines —Friction and lubrication, Static equilibrium of machines Turning moment diagrams, Fly-wheels Governors

(Fourth Term—2 hours weekly)

Balancing of machines, Brakes and Dynamometers

(Fifth Term—1 hour weekly)

Valves and valve gears Valve diagrams Lubrication
Vibration

(1½ hours weekly)

Laboratory Practice

MACHINE DRAWING.

(Second Term—2 hours weekly)

Fastenings applied to structures Design of bearings
Working drawings for a crane jib Hydraulic pipe lines, pipe joints and specials

(Third Term—2½ hours weekly)

Complete working drawings for (a) Canal Sluice Gate,
(b) Travelling gantry Drawing from measurement of a complete 5 H P engine

MECHANICAL ENGINEERING.

(First Term—1 hours weekly)

Workshops.—Practical work in Carpenter's, Blacksmith's and Moulding Shops

(*Second Term—2 hours weekly*)

Workshops —Practical work in machine and fitting shops

ELECTRICAL ENGINEERING.

(*Third Term—2 hours weekly*)

Electrical Technological —*The magnetic circuits* —General consideration Magnetic leakage, Circuits in parallel, Cycles of Magnetism, B H Curves

Electromotive force —Production, Induced E M F, Statically and self induced E M F, Co efficiencies of self and mutual induction, Rise and decay of current

Construction of D C Machines —Windings, Commutation E M F, equation Armature reaction, Interpoles Compensating windings Characteristics of D C Generators

Direct Current Motors —Back E M F, speed, Characteristics, Series, Shunt and Compound Motors, Speed control, Series and parallel working

(*Fourth Term—4 hours weekly*)

Alternating Current —Principles, Effective value, Induction, reactions and capacity, Polyphase currents, Alternators Voltage regulation and parallel working, the induction motor Converting machinery

Transformers —Single phase, Construction Theory, Use Cooling, Auto transformers, Parallel working, Single phase commutator motors, Complex wave forms Phase advancing Electric furnaces, Electric welding

Rectifiers —Mercury and Valve

Power House equipment

(Fifth Term—4½ hours weekly)

Transmission and distribution of electrical energy —
Supply system Distributors Insulation resistance Feeders,
Time constants Lines Insulators Mechanical Characteristics
Cables Voltage control Circuit breakers, Feeder protection,
Travelling wave Protection against overvoltages

Group VI.—PROJECTS.

The projects will consist of the preparation of detailed designs and estimates for various engineering schemes. There will be one minor project, which will be examined by internal examiners and a major project which will be set and examined by an outside examiner. The maximum marks allotted to the minor project are 300 and to the major 700, making a total of 1,000 in this Group.

Group VII. PHYSIQUE AND GENERAL FITNESS.

General Fitness includes discipline, punctuality, general conduct and ability to control labour etc throughout the three years course Over 10 per cent of the total marks for the whole three years course are allotted to this group and the total marks therefore constitute a very fair and true record of the student's intellectual and physical fitness for the work of an Engineer

The sub heads and the marks allotted are —

Members of the A F I and U T C are marked for Military Proficiency The full marks are	250
Athletics—Proficiency in games and sports	350
General Fitness—Physical and moral fitness for work in the engineering profession	200
Total	800

Athletics —The 250 marks for proficiency in games and sports will be allotted as follows —

Sprint of sport	100
Swimming	50
Athletic sports	50
Games (1) Boat ng (2) Tennis and Squash Racquets, (3) Football (4) Hockey and (5) Cricket Any three will carry 90 marks	150
Total	350



COURSE OF STUDY AND SYLLABUS.

OVERSEER CLASS

1911-12 and till further notice

The chief points kept in view in arranging this Course of Study are to ensure the necessity for steady work throughout the whole course, and to co-ordinate the instruction given in each subject so as to lead up to a thorough test of the qualifications necessary for an overseer in the Public Works Department of as high a grade as a College training can produce, special attention being paid to the local conditions of India. This test is represented by the Project and the Final Examinations. Of the mark obtained in the first year 50 per cent are carried on to the second year so that continuous steady work is necessary for ultimate success.

Terms and Examinations

FIRST TERM—

College Attendances — From October 16 to a variable date in February

Mid Sessional Examinations — Start on the first or second Monday in February whichever falls nearest to February 7 or as may be arranged

SECOND TERM—

• *College Attendances* — Start on the Monday following the Mid Sessional Examinations and continue till about the 1st Saturday in June

Petition in Quarters — During Entrance Examinations

Final Examinations — Start in the last week of April,

COURSE OF STUDY AND SYLLABUS.

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1911-12 and till further notice

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SECOND TERM—

College Attendance—Start on the Monday following the Mid Sessional Examinations and continue till about the 1st Saturday in June

Revision in Quarters—During Entrance Examinations

Final Examinations—Start in the last week of April,

A student, who fails to attain the standard prescribed for the 1st year course will be given one more chance to repeat his studies at the College in the first year course. Such a student will not be eligible to compete for the United Provinces Government scholarships or academic prizes

Should the failure in the 2nd year be, however, due to prolonged absence through sickness or other circumstances beyond the student's control, such cases will be considered and decided upon their merits

The examinations, the marks assigned to them and the time-tables are shown on the following pages.

The Course of Study extends over two years, and comprises the following subjects grouped under eight heads, to which the following numerical values are assigned —

	Marks
Group I—Civil Engineering	1 075
„ II—Pure and Applied Mathematics	700
„ III—Surveying	550
„ IV—Drawing	275
„ V—Mechanical and Electrical Engineering	450
„ VI—General	100
„ VII—Project and Design	450
„ VIII—Physique, and general fitness	400
	<hr/>
Total	4 000
	<hr/>

The marks required at the end of the second year for certificates are as follows —

I—To obtain the Higher Certificate as Overseer the minimum pass marks of 50 per cent in each group and 60 per cent in the total must be obtained

II—To obtain an ordinary Certificate (required for all Overseers), the minimum pass marks of 33 per cent in each group and 50 per cent in the total must be obtained

For admission to the 2nd year a student has to obtain at least 33 per cent of the marks allotted to each group and 50 per cent of the grand total

EXAMINATIONS AND MARKS.

Second Year.

THEORETICAL

First term		Second term	
	Marks		Marks.
1. Roads and bridges	100	1 Civil Engineering I (Building Construction) ..	100
2. Estimating ..	100	2 Civil Engineering II (Bridges and Railways)	100
3. Surveying ..	100	3 Civil Engineering III (Sanitary Engineering and Water supply) ..	100
4. Hydrostatics and Hydraulics	100	4 Civil Engineering IV (Irrigation) ..	100
5. Applied Mechanics ..	100	5 Estimating ..	100
6. Elementary Electrical Engineering	100	6. Surveying ..	100
7. Mechanical Engineering ..	100	7. Applied Mechanics ..	100
		8 Mechanical Engineering ..	100
	<hr/> 700		<hr/> 800

PRACTICAL AND CLASS WORK

1. Field Engineering	50	1 Engineering Note-books ..	50
2. Survey Course	200	2 Drawing Course ..	100
		3 Drawing Examinations ..	50
		4. Process work ..	50
		5 Applied Mechanics Tutorial	100
		6 Civil Engineering Design ..	150
		7. Project ..	200
		8 Workshops ..	50
		9 General Fitness ..	400
	<hr/> 250		<hr/> 1,250

TOTALS.

		Marks.
First term ..	..	950
Second term ..	..	2,050
		<hr/> 3,000
Add First Year's marks ..	..	1,000
		<hr/>
GRAND TOTAL	..	4,000

EXAMINATIONS AND MARKS

First Year.

THEORETICAL.

First term.

	Marks
1. Building Materials ..	100
2. Building Construction (Carpentry) ..	100
3. Earthwork ..	100
4. Trigonometry ..	100
5. Mensuration and Geometry ..	100
6. Mechanics ..	100
	<hr/>
	600

Second term.

	Marks
1. Civil Engineering I (Building Materials, Earthwork and Carpentry) ..	100
2. Civil Engineering II (Masonry and Building Construction) ..	100
3. Elementary Mathematics ..	100
4. Mechanics ..	100
5. Surveying ..	100
6. Physical Science ..	100
7. Mechanical Engineering ..	100
	<hr/>
	700

PRACTICAL AND CLASS WORK.

1. Levels in the field ..	100
	<hr/>
	100
	<hr/>
	700

1. Engineering Note books ..	50
2. Mathematics and Mechanics Tutorial ..	100
3. Surveys in field ..	100
4. Drawing Course ..	100
5. Drawing Examination ..	50
6. Workshops ..	100
	<hr/>
	600
	<hr/>
	1,300

TOTALS

	Marks.
First term	700
Second term	1,300
	<hr/>
GRAND TOTAL ..	2,000
	<hr/>
Carried forward 50 per cent ..	1,000

TIME-TABLES

TIME TABLE.

First Term

	Hour	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1st year	8-9	Civil Eng.	Mech Eng	Civil Eng	Mechanics	Workshops	Civil Eng
	9-10	Mathematics.	Drawing	Civil Eng.	Drawing	Workshops	Civil Eng
	10-11	Civil Eng	Drawing	Physice	Drawing	Mathematics	Mechanics
	11-12	Civil Eng.	Drawing	Mathematics	Drawing	Mathematics	Mechanics
	12-1	Recess	Recess	Recess	Recess	Recess	
2nd year	1-2	Survey	Workshops	Civil Eng	Survey	*Physics Lab	
	2-3	Survey	Workshops	Civil Eng	Survey	*Physics Lab	
		..	..	..	(*) Alternate weeks Mechanics Lab.		
	8-9	Civil Eng.	Survey	Applied Mech.	Survey	Survey	Elect. Eng.
	9-10	Civil Eng.	Survey	Applied Mech.	Survey	Survey	Civil Eng.
2nd year	10-11	Drawing	Survey	Drawing	Survey	Survey	Civil Eng.
	11-12	Drawing	Survey	Drawing	Survey	Survey	Civil Eng.
	12-1	Recess	Recess	Recess	Recess	Recess	..
	1-2	Workshops	Applied Mech.	Mech. Eng	Estimating	Civil Eng	..
	2-3	Workshops	Applied Mech.	Elect. Eng	Estimating	Civil En .	..
	

Mid seasonal Examinations 1st and 2nd year start Monday, January , 1912.

Group I.—CIVIL ENGINEERING.

BUILDING MATERIALS*

(1st year 1st half session)

Stone.—Selection Characteristics. Classification and varieties Quarrying Blasting Dressing. Implements.

Bricks and Tiles.—Classes of bricks and their distinguishing qualities Moulding Drying and stacking. Brick-burning Types of kilns Firebricks Terra-cotta Tile manufacture

Cements, Limes and Mortars.—Use of mortar. Natural and artificial cements Varieties of limes Hydraulicity. Burning Clamps Plaster Whitewash Distemper. Concrete Portland cement

Timber.—Growth of trees Felling trees Classification and properties of Indian and other woods Most suitable woods for particular purposes

Building materials.—(a) *Metals and Alloys*—Pig iron, cast iron, wrought iron and steel Tempering, case hardening, forging and welding Characteristics of cast iron, wrought iron and steel Corrosion and preservation of iron and steel Copper, Lead, Zinc, Tin, Aluminium

(b) *Miscellaneous*—Paint, Bases, Vehicles, Solvents Driers, Pigments, Varnish, Wood oiling, Glass, Putty, Glue Size, Creosote, Coal tar and Pitch and Bituminous preparations

CARPENTRY*

(1st year, 1st half session)

Elementary Carpentry as applied to Civil Engineering

*See time tables on pages 191 and 192

SECOND TERM						
	Hour	Monday	Tuesday	Wednesday	Thursday	Friday
1st year	8-9 9-10 10-11 11-12 12-1 1-2 2-3	Survey Survey Civil Eng * Recess Workshops Workshops Workshops	Drawing Drawing Mathematics Recess Physical Science Civil Eng *	Mech Eng Mathematics Mathematics Recess Drawing Drawing	Mechanics Drawing Drawing Recess Civil Eng * Civil Eng *	Drawing Drawing Drawing Recess Mechanics Mechanics
2nd year	8-9 9-10 10-11 11-12 12-1 1-2 2-3	Drawing Drawing Drawing Recess Estimating Estimating	Civil Eng * Applied Mech Civil Eng * Recess C E Design C L Design	Civil Eng * Civil Eng * Mech Eng Recess Applied Mech Applied Mech	Survey Survey Civil Eng * Recess Estimating Estimating	Civil Eng * Applied Mech Civil Eng * Recess Workshops Workshops Workshops

N.B.—Design periods will be under general supervision of P.C.E. (1) and immediate supervision and assistance of the Headmaster

* Periods marked will be taken under the supervision of P.C.E. (2)

The 2nd Year Project will commence about the 4th May and will continue to about the end of 1st week of June

The 1st Year Drawing Courses will be submitted on the Saturday previous to the Entrance Examinations in June

The 2nd year Drawing Course will be submitted on the last Drawing period before the Project

Practical work will be taken up after the Final Examinations in the 2nd term of the 1st Year in the afternoon periods

Group I.—CIVIL ENGINEERING.

BUILDING MATERIALS*

(1st year 1st half session)

Stone—Selection Characteristics Classification and varieties Quarrying Blasting Dressing Implements

Bricks and Tiles.—Classes of bricks and their distinguishing qualities Moulding Drying and stacking Brick-burning Types of kilns Firebricks Terra-cotta Tile manufacture

Cements, Limes and Mortars—Use of mortar Natural and artificial cements Varieties of limes Hydraulicity Burning Clamps Plaster Whitewash Distemper. Concrete Portland cement

Timber.—Growth of trees Felling trees Classification and properties of Indian and other woods Most suitable woods for particular purposes

Building materials.—(a) *Metals and Alloys*—Pig iron, cast iron wrought iron and steel Tempering, case hardening, forging and welding Characteristics of cast iron, wrought iron and steel Corrosion and preservation of iron and steel Copper, Lead, Zinc, Tin, Aluminium

(b) *Miscellaneous*—Paint, Bases, Vehicles, Solvents Driers, Pigments, Varnish, Wood oiling, Glass, Putty, Glue Size, Creosote, Coal tar and Pitch and Bituminous preparations

CARPENTRY*

(1st year, 1st half session)

Elementary Carpentry as applied to Civil Engineering

*See time tables on pages 191 and 192

MASONRY**(1st year, 2nd half session)*

Stone Masonry.—Ashlar of various sorts Block in course
 Bond Dressing stone Rubble masonry Safe loads
 Lewis Dowel Joggle Cramp Template Bedding
 Moisture Precautions against settlement Raking back
 Corbel Lintel Jamb Reveal Sill Coping

Brick Masonry.—Types and their uses Bond Closer
 Bedding Moisture Precautions against settlement Rak
 ing back Coping Cornice Blocking course Parapet
 Eaves course Corbel Lintel Jamb Reveal Sill Drip
 course Pise walling *Dhaj* walling Hollow masonry
 Reinforced brickwork

Miscellaneous.—Retaining walls Depths of foundations
 Counterforts and buttresses Revetments Construction and
 sinking of masonry wells Simple masonry dams Technical
 names of various parts Scaffolding Shears Derrick
 Gun Gantry Plastering Pointing

EARTHWORK**(1st year, 2nd half session)*

Definitions Contracts Stability and properties of soils
 Measurement and setting out Instruments used Sections
 and volumes Drainage Puddling Consolidation Pres-
 sing and Turfing Rates Lift and lead

BUILDING CONSTRUCTION**(1st and 2nd years)*

Sites Foundations description of different types and
 calculations Walls, strutting, buttresses and pilasters
 shoring and under pinning Arches Chimney stacks de
 tails of design Methods of fitting door frames to walls

*See time tables on pages 191 and 192

Damp proof courses Columns and stanchions with details of design Staircases with details of design Floors and ceilings Roofs types and different methods of support House fitting Ventilation Reinforced concrete construction, calculations with details of design of simple slabs, T beams and columns Proportions of cement ballast and sand

ROADS.

(2nd year)

History survey, alignment, formation, foundations Hill roads plains roads earth roads, bridle paths, gradients, curves, banking on curves, camber, drainage, various types of wearing surfaces concrete roads, footpaths, dust prevention, traffic, traffic census collection, consolidation, maintenance, motor transport types of bridges and culverts

RAILWAYS.

(2nd year)

Land required Earthwork Road crossings Grades and Ruling gradients Permanent way and Ballast Materials used and functions of permanent way Points and Crossings Maintenance of permanent way Plate laying Super-elevation Station requirements Light railways Mountain Railways Tunnelling

BRIDGES.

(2nd year)

Selection of site Types of bridges Foundations, piers and abutments Descriptions with details of stone, brick, steel and concrete bridges Piles and pile driving Sheet screw and interlocking piling Diving operations, reclamation and dredging

MASONRY**(1st year, 2nd half session)*

Stone Masonry — Ashlar of various sorts Block in-course
 Bond Dressing stone Rubble masonry Safe loads
 Lewis Dowel Joggle Cramp Template Bedding
 Moisture Precautions against settlement Raking back.
 Corbel Lintel Jamb Reveal Sill Coping

Brick Masonry — Types and their uses Bond Closers
 Bedding Moisture Precautions against settlement Rak
 ing back Coping Cornice Blocking course Parapet
 Eaves course Corbel Lintel Jamb Reveal Sill Drip
 course Pise walling *Dhap* walling Hollow masonry
 Reinforced brickwork

Miscellaneous — Retaining walls Depths of foundations
 Counterforts and buttresses Revetments Construction and
 sinking of masonry wells Simple masonry dams Technical
 names of various parts Scaffolding Shears Derricks
 Gyn Gantry Plastering Pointing

EARTHWORK**(1st year 2nd half session)*

Definitions Contracts Stability and properties of soils
 Measurement and setting out Instruments used Sections
 and volumes Drainage Puddling Consolidation Dre
 ing and Turfin Rates Lift and lead

BUILDING CONSTRUCTION**(1st and 2nd years)*

Sites Foundations description of different types and
 calculations Walls strutting buttresses and pilasters
 shoring and under pinning Arches Chimney stacks de
 tails of design Methods of fitting door frames to walls

*See time tables on pages 191 and 19

Damp proof courses Columns and stanchions with details of design Staircases with details of design Floors and ceilings Roofs types and different methods of support House fittings Ventilation Reinforced concrete construction, calculations with details of design of simple slabs, T beams and columns Proportions of cement ballast and sand

ROADS.

(2nd year)

History survey, alignment, formation, foundations Hill roads plains roads, earth roads, bridle paths, gradients, curves, banking on curves, camber, drainage, various types of wearing surfaces concrete roads, footpaths, dust prevention, traffic, traffic census, collection, consolidation, maintenance, motor transport, types of bridges and culverts

RAILWAYS.

(2nd year)

Land required Earthwork Road crossings Grades and Ruling gradients Permanent way and Ballast Materials used and functions of permanent way Points and Crossings Maintenance of permanent way Plate laying Super-elevation Station requirements Light railways Mountain Railways Tunnelling

BRIDGES.

(2nd year)

Selection of site Types of bridges Foundations, piers and abutments Descriptions with details of stone, brick, steel and concrete bridges Piles and pile driving Sheet screw and interlocking piling Diving operations, reclamations and dredging

IRRIGATION

(2nd year)

Well irrigation.—Source of supply Movement of sub-soil water Quantity of sub soil water The Mota Drainage cones Classes of wells Methods of raising water from wells Area protected by wells

Channels —Duty Design of channels Critical velocity Silt Spoil banks High embankments Losses by percolation and evaporation Design of outlets Use of discharge tables and charts

Headworks —Brief descriptions of headworks Main weirs Heights of weirs Afflux Causes of failure of weirs Description of foundations of weirs Functions of drop shutters Under sluices Object and descriptions of groynes below weirs Systems of lifting sluices Talus below weirs Afflux embankments Canal head regulators Temporary bunds

Drainage crossings —Brief descriptions

Works —Regulators Falls and their design Rapids Bed bars Escapes

Drainage works —Importance of draining an irrigated area Silt tanks

Training works —Their object Dead water Straightening channels Temporary training works Methods of influencing current

SANITARY ENGINEERING

(2nd year)

PART I

WATER SUPPLY.

Sources of supply —Rivers, lakes, springs and wells
Purity at source Sampling of water for analysis

Pumping arrangements —Intakes and unfiltered water pumping stations Filtered water stations Tests Rising mains

Storage —Re-ervoirs and tanks

Filtration —Simple sand and mechanical filters Sterilization and chlorination

Distribution —Layout of simple mains, Water supply fittings Calculation of hydraulic mean gradient and hydraulic mean depth Losses of head

PART II

SANITARY ENGINEERING.

Systems of collection and removal of refuse —State of sanitation in India Refuse removal

House fittings —Water closets Urinals Sinks Baths House drains Indian adaptations Connexions with sewers Pail depots

Sewers and drains —Layout Separate and combined systems Materials used in construction Flushing Calculations of sizes and gradients

Public conveniences —Dry pattern latrines Water flushed latrines Urinals

Sewage disposal —Selection of site for outfall Purification by (a) land irrigation, (b) intermittents and filtration, (c) Septic tanks and (d) Activated sludge system of sewage disposal

FIELD ENGINEERING

(2nd year)

(1) Use of Spars —Various knots and lashings and the suitability of each to certain circumstances Coiling and handling of ropes Blocks and tackle Peeving of blocks Use of handspikes and rollers Hold fasts Guys Use and construction of derricks, shears gins and trestle in

girders or columns in position in buildings or for other similar work

(ii) **Ground Tracing.**—General principles (Masonry Manual) Working plans for foundations on level ground and on slopes Trenches with vertical and with sloping sides Laying out buildings on the ground and similar practical instruction

ESTIMATING.

(2nd year)

Taking off —Rules for taking off quantities in earthwork masonry, flooring, wood work, mouldings, arches, groined roofs, domes, steel work and plumber's work

Abstracting —Calculation of quantities of materials required to be furnished for the completion of work

Rates —Rates and their analysis Rates for carriage of materials by different means of transport

Specifications —Detailed and General

Contracts —Preparation Contract law

NOTES ON WORKS.

(1st and 2nd years)

Each student will keep a note book and record in it descriptions and sketches of any materials, manufacturers or works visited by him

Advantage will be taken of every work of repair or construction under execution in or near Roorkee, by careful inspection both under the instruction of a master and independently Full notes and sketches are to be recorded by students in their note books which are to contain no transcripts from their text books The date of each visit to a work should invariably be recorded at the head of the notes referring to the same

These note books will be inspected once a month and marks will be allotted at the end of each term

Group II.—PURE AND APPLIED MATHEMATICS

ELEMENTARY MATHEMATICS.

(1st year)

GEOMETRY.

Students will be expected to be familiar with the subject-matter of Hall and Stevens School Geometry, Parts I—IV. Students will also be expected to solve simple riders and to apply the propositions practically in the solution of easy graphical problems requiring geometrical drawing.

TRIGONOMETRY.

Angles and their measurements. Trigonometrical ratios. The relation between the ratios of complementary and supplementary angles, and of multiple and sub multiple angles. Simple identities and equations. Solution of triangles including problems relating to heights and distances, and those requiring the use of logarithms. Graphical representation of simple functions.

MENSURATION.

Areas of plane rectilineal figures and of segments and sectors of circles and lengths of chords. Surfaces and volumes of cones, frusta of cones, spheres, zones of spheres, pyramids, prisms, cylinders and wedges. Use of the planimeter.

ELEMENTARY MECHANICS.*(1st year)*

Conception of force, and its unit stress and strain
 Elementary laws relating to concurrent forces Parallelo-
 gram and triangle of forces Lami's theorem Parallel
 forces Funicular polygons Moments Centres of gravity
 Friction Simple cases of equilibrium Principle of work
 Simple machines, namely lever, screw, pulleys, wheel and
 differential pulleys, velocity ratio, mechanical advantage and
 efficiency Velocity and acceleration Relative velocity
 Absolute unit of forces Simple examples on rectilinear
 motion including the principles of energy and momentum

ELEMENTARY APPLIED MECHANICS.*(2nd year)*

Stress and strain analysis Calculation of cross sectional
 areas of a tie rod Application of Gordon's and Rankine's
 formula to find safe stress in a compression member Graphi-
 cal determination of stresses in simple roof frames including
 the effect of wind pressure Simple cases of bending moment
 and shearing force diagrams for cantilevers and simply
 supported beams Moments of resistance of rectangular
 beams The manner in which the bending moment is resisted
 and the flange stresses in T beams Neutral axis and its loca-
 tion Design of wooden beams Stiffness of beams and the
 calculation from deflection formulae for simple cantilevers and
 beams under (1) a distributed load, and (2) a single concentra-
 ted load Graphic testing of retaining walls and arches

HYDROSTATICS AND HYDRAULICS.*(2nd year.)*

Fluid pressure at a point in a mass of liquid at rest, and on a plane surface partly or wholly immersed. Intensity of pressure and whole pressure. Centre of pressure in simple elementary cases. Atmospheric pressure. Barometer. Syphon and water pumps. Velocity afflux through orifices and over weirs. Fluid friction and application of formulæ for discharge through pipes and channels to practical cases. Monometer

Group III.—SURVEYING.

(1st year)

The Level.—The use and adjustment of the level
Different types of levels and their constructional details
Different types of levelling staves and their markings Their
relative merits Precautions in using levels Level field
books of different kinds Booking and reduction of levels
Comparative merits of reduction methods Definition of terms
used in levelling Sources of error Curvature and refraction
Longitudinal sections and their plotting Allow-
able closing error

Chain Surveying—Equipment Ranging and chaining
lines Errors in chaining Customary limits of error Recon-
naissance Selection of stations Keeping of the field
book Obstacles which obstruct chaining but not ranging
Obstacles which obstruct ranging but not chaining Obstacles
which obstruct ranging and chaining Plotting the survey

(Students will carry out and plot an actual chain survey)

Compass Surveying—The Prismatic Compass, construc-
tional details and its uses Bearings and angles Magnetic
and true meridian Variation Designation of bearings
Comparative merits of whole circle and quadrantal reckoning
Back bearings Application of compass surveying Local
attraction Elimination of effects Sources of error Limits
of precision Adjustment of closing error

(Students will carry out and plot an actual survey with
the compass)

(2nd year)

The Theodolite —The use and adjustments of the theodolite Parts for horizontal measurement Parts for vertical measurement Details of the Theodolite Measurement of angles Repeating angles Requirements of the Theodolite Conditions established by adjustment Errors in non adjustable parts Elimination of these errors

Traversing and its computations —Definition of a traverse Gale's traverse system Conditions fulfilled in a closed traverse Calculation and tabulation of co-ordinates Closing error and its adjustment Advantages of plotting by co-ordinates Omitted measurements and their calculations

Plane-tableing —Equipment Advantages and disadvantages of plane tabling Maxims for plane tabling Order of working Methods of plane-tableing Fixing of position Traversing with the plane table Engineering contouring

(Students will carry out an actual theodolite traverse in the field and fill in the details of the area with the plane table)

They will also carry out a plane table traverse filling in all details and contouring the area)

Curves and Alignments —Designation of curves Elements of curves Setting out by means of Theodolite and chain Setting out by means of chords and offsets Methods of calculation when curves start or end with sub chords Tabulation Problems in simple and compound curves Curve of deviation Transition curves Simple method for laying out a transition curve

Engineering Surveying —Surveying requirements when making a project for a building bridge road canal distributary or railway

Group IV.—DRAWING

(1st and 2nd years.)

The course has been arranged to carry the student step by step in the technique of drawing as a preparation for a course in engineering design and survey mapping.

Drawings will be made of building construction details, culverts, railway and road plans, etc. In addition, drawings will be made from actual measurements taken of existing buildings. Projections and sections of solids.

NOTE—All drawing plates must be done in College during drawing period and the dates of commencement and completion with the student's name and order of standing in the class are to be written on each plate.

Group V —MECHANICAL AND ELECTRICAL ENGINEERING.

WORKSHOPS.

(1st and 2nd years)

The object of the course is to familiarise students with the appearance, structure, and properties of materials commonly used in engineering and with the tools and processes by which they are shaped

Carpentry.—A series of simple exercises will be provided including the preparation of various types of joints used in wood work

Foundry —The use and preparation of sand moulds and the explanation of foundry methods

Students will be provided with simple patterns and cores from which they will prepare moulds and make castings in white metal, etc

Forge.—Use of tools employed in forge work Exercises in drawing down, upsetting, welding, etc

Fitting and Machine Shop.—Use of hand tools in bench-work Cutting tools and their action Characteristic features of simple machine tools

DESCRIPTIVE MECHANICAL ENGINEERING.

(1st year.)

Fastenings.—Screws, bolts, nuts, their production and uses Rivets and riveted joints, standard iron and steel sections

Boilers. —Shell, Water tube and Fire tube Description of the more common types, their erection and inspection Boiler accessories, description and uses Steam pipe lines Arrangement and Lagging

Steam Engines.—Description of the simplest types, including portable engine Engine foundations Erection

(2nd year)

Internal Combustion Engines.—Description of oil, petrol and gas engines Foundations Location of starting and running faults

Hydraulic Machinery.—Laying and anchoring of pipe lines Description of turbines Description of common types of reciprocating and centrifugal pumps

Power Transmission —Elementary treatment of power transmission by means of belts gearing, ropes, chain and friction drives

Lectures will be illustrated by models, wall diagrams of modern machinery and conducted inspections of examples of the above machinery in the College workshop and laboratories

ELEMENTARY ELECTRICAL ENGINEERING.

(2nd year)

The lightning conductor, parts used in and general rules for erection, function of the lightning conductor Earth resistance of the conductor and method of measuring it Other tests to see that the conductor is in good condition

House Wiring —Principles laid down by Government in "Specifications for internal wiring "

D C Power Plants—Layout of simple D C distribution systems. Description and working of simple switchboards. Protection devices and knowledge of normal faults in a small power station. (The course will not include the theory or manufacture of electrical machinery, but laboratory demonstration will be given of every principle dealt with in the course.)

Group VI.—GENERAL.

ELEMENTARY SCIENCE.

(1st year)

The subject is an elementary one and is taken up with special reference to the Engineering subjects. The elementary physical principles taught are illustrated by numerical examples in tutorial work and the measurement of principal quantities involved is carried out in the physical laboratory by students in a simple manner.

General Measurement—Fundamental units in C G S and F P S systems. Mass density and specific gravity. Buoyancy. Determination of specific gravity by simple methods. Atmospheric pressure and Boyle's Law, Fortin and aneroid barometers, syphon, pressure gauges and water pumps.

Heat—Mercury thermometer and its graduation. Expansion of solids, liquids and gases with simple applications. Charles' law. Units of heat, specific heat, its measurement by the method of mixtures, measurement of specific heat of liquid by the method of cooling. Laws of fusion and ebullition, melting and boiling points, latent heat, evaporation. Transfer of heat by conduction, convection and radiation with simple applications of these methods. Heat and work, mechanical equivalent of heat. Calorific value of coal. Thompson's fuel calorimeter.

Light—Rectilinear propagation of light and shadows. Units of illumination and illuminatory power. Photometers. Laws of reflection and refraction, mirrors and lenses. Elementary Electricity and Magnetism.

Magnetism — Properties of magnets and magnetic needles magnetic poles and fields Magnetic induction, law of induction equates terrestrial magnetism with reference to dip, intensity and variation

Electricity — Voltaic cells, Daniell cells Leclanché cell Bunsen cells Dry cells Accumulators

Oersted's experiment Ampere's rule Magnetic field due to a current in a straight wire and in a circular wire Electric telegraph, electric bell The principle of electromagnetic induction

Heating, lighting and chemical effects

Ideas about unit current, voltage, power and energy, Ohm's law Simple grouping of cells and resistances

Ammeters voltmeters, wattmeters, tangent galvanometers

The course of experimental work in the Science Laboratory should take the student over a range of experiments covering as far as possible, the syllabus in Science

PROCESS WORK.

(1st year)

Students will be shown the details of both the Ferrugalic and Ferric prussiate processes and will be expected to make prints from their own tracings on paper sensitised commercially and on paper which they will themselves sensitise Each student will submit three copies of prints on each kind of paper in both processes

Group VI.—GENERAL.

ELEMENTARY SCIENCE.

(1st year)

The subject is an elementary one and is taken up with special reference to the Engineering subjects. The elementary physical principles taught are illustrated by numerical examples in tutorial work and the measurement of principal quantities involved is carried out in the physical laboratory by students in a simple manner.

General Measurement.—Fundamental units in C.G.S. and F.P.S. systems. Mass density and specific gravity. Buoyancy. Determination of specific gravity by simple methods. Atmospheric pressure and Boyle's Law; Fortin and aneroid barometers, syphon, pressure gauges and water pumps.

Heat.—Mercury thermometer and its graduation. Expansion of solids, liquids and gases with simple applications. Charles' law. Units of heat, specific heat, its measurement by the method of mixtures, measurement of specific heat of liquid by the method of cooling. Laws of fusion and ebullition, melting and boiling points, latent heat, evaporation. Transfer of heat by conduction, convection and radiation with simple applications of these methods. Heat and work, mechanical equivalent of heat. Calorific value of coal. Thompson's fuel calorimeter.

Light.—Rectilinear propagation of light and shadows. Units of illumination and illuminatory power. Photometers. Laws of reflection and refraction, mirrors and lenses. Elementary Electricity and Magnetism.

Group VIII —PHYSIQUE AND GENERAL FITNESS.

(1st and 2nd years)

Physical Drill Proficiency in games and athletic sports
Physical and moral fitness for work in the engineering profession

The sub heads and marks allotted to Group VIII—Physique and General Fitness are —

Physical Drill	..	..	100
Athletics—Proficiency in games and sports	..	..	150*
General Fitness—Physical and moral fitness for work in the engineering profession	..	..	150
			—
Total	..	..	400
			—

Group VII.—PROJECT AND CIVIL ENGINEERING DESIGN.

The student will be required to design a number of simple structures under professional instruction and guidance

The course will include the design of small buildings, culverts, simple design of beams, columns and slabs in reinforced concrete Steel trusses, steel stanchions and small Falls for minors and distributaries

Special stress will be laid on the design of constructional details

The actual project will consist of the preparation of a detailed design for an engineering scheme complete with report, specifications and estimate Each student will do his work independently

Group VIII —PHYSIQUE AND GENERAL FITNESS.

(1st and 2nd years)

Physical Drill Proficiency in games and athletic sports
Physical and moral fitness for work in the engineering profession

The sub heads and marks allotted to Group VIII—Physique and General Fitness are —

Physical Drill	..	..	100
Athletics—Proficiency in games and sports	..	..	150*
General Fitness—Physical and moral fitness for work in the engineering profession	..	..	150
			—
	Total	..	400
			—

* Athletics will be marked for Football Hockey Tennis and Athletic sports and such marks will be awarded by the Head Master in consultation with the Principal. Any three will carry the 150 marks

COURSE OF STUDY AND SYLLABUS

DRAFTSMAN CLASS

(1st Year)

Drawing Plates

1. Block printing of modern style and ornamental practice of freehand printing
2. Italic Printing—slanting and upright
3. Scales—Principles of Scales and scaling
4. Simple Geometrical figures Construction of arches
5. Orthographic projections Projections of solids including intersecting planes
6. Sciagraphy—Shades and shadows
7. Simple building with oblique sections
8. One small culvert with oblique sections
9. A simple building—its constructional details
10. Measured drawing of a historical building
11. Measured drawing of residential buildings, one with a flat roof and the other with pitched roof with oblique sections
12. Details of doors and windows and other large scale details of one of the above buildings

Lecture work

Description and use of instruments and paper used in Engineering Drawing

Use of projective drawing in building drawing

Building Construction—Brickwork stone masonry carpentry joinery and Reinforced Concrete

(2ND YEAR)

Drawing Plate

- 1 Parallel of the order Their application
- 2 Constructional details of one of the various types of domes
- 3 A big residential building—single storied
- 4 A big residential building—double storied
- 5 A school building a court house a post office a bank building or a small hospital
- 6 A Water tower
- 7 Regulator of the head of a small distributary
- 8 A canal fall
- 9 A canal syphon
- 10 Structural steel work details
- 11 Abutments and buttresses etc and stability diagram of a retaining wall and a weir
- 12 Plotting from field book of chain survey and levelling

Lecture work

Five orders of classic architecture

Different types of pillars in Indian style of architecture

Different types of arches including those in Indian Style

Building Construction—Details of fireplace construction designs of mantel pieces working out sizes of scantling for roof trusses sizes of floor joists and beams (wooden steel and concrete) elementary knowledge of the design of stanchions and pillars foundations and footings damp proof courses in a building

Mathematics—Elementary Simple Trigonometry plane mensuration use of log tables

Specification writing

(3RD YEAR)

Drawing Plates

- 1 Sketching and rendering
- 2 Making perspective of a building
- 3 A Reinforced Concrete bridge
- 4 Measured drawing of a trussed girder bridge
- 5 Measured drawing of a large building including rendering and preparing show drawings

Ferrotypc

Tracing of 5 drawing plates on linen Taking out blue prints

Estimating

- 1 Taking out quantities from working drawings of—
 a small building with pent roof
 one large building with flat roof,
 an arched culvert,
 one Reinforced Concrete bridge,
 a canal syphon
- 2 Abstracting of above quantities
- 3 Analysis of rates of all usual items

PRIZES

CIVIL ENGINEERING CLASS

THE COUNCIL OF INDIA PRIZE OF Rs 1 000

To the most distinguished student who obtains the Honours Diploma in Civil Engineering

THE THOMASON PRIZE OF Rs 250

To the most distinguished student who obtains the Honours Diploma in Civil Engineering but does not obtain the Council of India Prize

THE RAI BAHADUR KANHAIYA LAL GOLD MEDAL

To the most distinguished Indian student, who does not obtain the Thomason or Council of India prize

THE THOMASON GOLD MEDAL AND BOOKS WORTH Rs 25

To the student who submits the best engineering projects of a certain minimum excellency

THE CAUTLEY GOLD MEDAL

To the student, who is the best mathematician and who obtains not less than two thirds of the total marks in Group II

THE CALCOTT REILLY MEMORIAL GOLD MEDAL

To the student who obtains the highest number of marks in Applied Mechanics

THE GENERAL MACLAGAN PRIZE, BOOKS TO THE VALUE OF
Rs 34

To the student who obtains the highest number of marks in experimental science Highest marks in Electrical Engineering final year result plus highest marks in Physics 1st year results

THE SUSHILA AND J MITRA MEMORIAL SILVER MEDAL

To the Indian student, who obtains the highest number of marks in chemistry in 2nd year results. If there is a tie 1st year results will decide

**THE PURANMAL SILVER MEDAL FOR PUBLIC HEALTH
ENGINEERING**

The Puran Mal Silver Medal for Public Health Engineering awarded to the Civil Engineer class 3rd year student who obtains the highest marks in the final external examination paper on Water Supply and Sanitary Engineering

SILVER MEDALS

for

CIVIL ENGINEERING (THIRY)	DRAWING HIGHEST MARK IN FIRST YEAR
SURVIFYING HIGHEST MARKS IN THREE YEARS	MECHANICAL ENGINEERING HIGHEST MARKS IN THREE YEARS

LABORATORY WORK

To the student who obtains the highest number of marks in practical and class work in Physics and Chemistry

OVERSEER CLASS

THE GENERAL MERIT PRIZE OF A SILVER MEDAL AND Rs 100

To the most distinguished student who obtains the highest number of marks

THE KEAY MEMORIAL SILVER MEDAL AND Rs 18 (APPROX)

To the student who obtains the highest number of marks in Estimating

THE DURGADA DAS DUTTA MEMORIAL SILVER MEDAL

To the most distinguished Indian student who obtains the Higher Certificate and who obtains the highest number of marks

THE RAJ BAHADUR KANHAIYA LAL SILVER MEDAL

To the most distinguished Indian student, who obtains the highest number of marks

THE RAJ BAHADUR KANHAIYA LAL SILVER MEDAL

To the Indian student who obtains the second highest number of marks

THE FAIRLEY MEMORIAL SILVER MEDAL

To the student who obtains the highest number of marks in Applied Mechanics

THE SULLIVAN MEMORIAL SILVER MEDAL

To the student who obtains the highest number of marks in Mechanics

LATA PURAN MAL MEDAL FOR PUBLIC HEALTH ENGINEERING

The Puran Mal Silver Medal for Public Health Engineering awarded to the Overseer class, 2nd year student, who obtains the highest marks in the final external examination paper on water supply and sanitary engineering

THE PROJECT PRIZE OF A SILVER MEDAL

To the student, who submits the best engineering project

SILVER MEDALS

for

MATHEMATICS

DESCRIPTIVE ENGINEERING

SURVEYING

DRAWING

WORKSHOP PRACTICE

To those students, who obtain the highest number of marks in these subjects

DRAFTSMAN CLASS

THE GENERAL MERIT PRIZE OF A SILVER MEDAL AND Rs 30

To the most distinguished student, who passes out head of the class

A SILVER MEDAL AND RS 20

To the student, who passes out second in the class—

N B—No prize will be awarded when the competition for it is insignificant or for any other adequate reasons

GENERAL.

In addition to the numerous academic prize there are many challenge cups and trophies for various events. These are mentioned below.—

(i) *The Harcourt Butler Cup*—

The cup is awarded under two sub heads "Work" and "Play"

"Play" shall be deemed to be that portion of the course (Civil Engineer Class) called "Physique and General Fitness" group as follows

A F I and U T C	150 marks
Athletics—Proficiency in Games and Sports	200 marks.
General Fitness—Physical and Moral Fitness for work in the Engineering Profession	400 marks
Total—For "Play" Group	800 marks
Total—For Studies or "Work" for the three years	6990 marks

This total is reduced to a maximum of 800 marks by the multiplier $80/699$ (or 0.11445)

Harcourt Butler Cup is awarded to the student who obtains the highest marks out of a total of 1600 marks consisting of 800 marks for play and 800 marks (reduced from a total of 6990 as above) for work.

In case of a tie, the student who obtains higher marks in the group "Work" (i.e. studies)

(ii) *The Sanders Challenge Cup* is to be awarded annually as a Challenge cup to the College student of highest

ever Class will be adjudged the best in all Games and Athletics Sports combined (excluding Rowing). It is to be awarded on the result of the College Championship events in Games and Athletics Sports and on skill and performance in team games such as Cricket, etc.

2. The cup is awarded on marks on a basis of 50 per cent each for Games and Athletic Sports by a Committee composed of

- (i) President of Recreation
- (ii) President Athletic Sports Committee
- (iii) Officer in charge of each Game

3. For the award of marks the two groups are divided into 4 sub groups and each sub group carries a maximum of 10 marks. The sub groups are

- (a) Games
 - (i) Tennis
 - (ii) Hockey
 - (iii) Football
 - (iv) Cricket
- (b) Athletic Sports
 - (v) Throwing the Cricket ball and putting the shot
 - (vi) High Jump Long Jump Hurdles
 - (vii) 100 220 440 Yards Races
 - (viii) 880 Yards Race, 1 mile and Cross Country Race

(a) Games—In tennis, marks will be allotted as follows

Finals or Olympic	10 marks
Semi Finals	8 marks
Quarter Finals	6 marks

These positions refer to the results of the annual tournaments for that year. In the event of a competitor coming amongst first eight in singles and doubles, the mean result will count. In Cricket, Football and Hockey, and in

who represents the College in Olympic will be awarded 10 marks. Otherwise 8 or 6 marks will be allotted by the Officer-in-charge of the game at his discretion.

(b) *Athletic Sports*—The award of marks will be decided by the Championship placing as follows

First and Second positions	10 marks
Third and Fourth positions	8 marks
Fifth and Sixth positions	6 marks

The mean of marks obtained by a student in each of the events of the sub-groups 5, 6, 7, 8 will then be the marks obtained by the student concerned in that sub-group.

4. Marks are awarded out of a maximum of 100 marks, the balance of 20 being allotted to a special sub-group 9. The method of award of these 20 marks is as follows

If a student obtains marks in X of the sub-groups 1, 2, 3, 4 and Y of the sub-groups 5, 6, 7, 8, then in the sub-group 9 he will be awarded $5X$ or $5Y$ marks whichever is less except that, in case he obtains marks in seven out of the first eight sub-heads, he will be awarded 17 marks.

Examples—A student in sub-group 9 obtains—

- 0 marks if he gains marks in 1, 2, 3, 4 and none in 5, 6, 7, 8
- 5 marks if he gains marks in 1, 2, 3 and also in 5
- 10 marks if he gains marks in 1, 2 and also in 6, 7, 8
- 15 marks if he gains marks in 2, 3, 4 and also in 6, 7, 8
- 17 marks if he gains marks in 1, 2, 3, 4 and also in 5, 6, 7
- 20 marks if he gains marks in 1, 2, 3, 4 and also in 5, 6, 7, 8

5. The total of marks obtained in the nine sub-groups will then decide the winner of Sandes Challenge Cup.

(iii) The Lion Challenge Trophy awarded to the student, irrespective of class, who obtains the highest number of marks in the Annual Sports.

- (iv) The Runner up Challenge Cup awarded to the student irrespective of class who obtains the second highest number of marks in the Annual Sports
- (v) The Bradshaw Smith Challenge Cup awarded to the student irrespective of class who wins the Cross Country Race
- (vi) The Cross Country Race Challenge Cup awarded to the student irrespective of class who finishes second in the Cross Country Race
- (vii) The Verriores Challenge Cup awarded to the winning Relay Race Team irrespective of class at the Annual Sports
- (viii) The McLaren Challenge Cup awarded to the winning Turn-of-Wind Team irrespective of class at the Annual Sports
- (ix) The Barnett Challenge Cup awarded to the Overseer Class student who obtains the highest number of marks in the Annual Sports not being a winner of either the Lion Trophy or Runner up Challenge Cup
- (x) The Single Sculls Challenge Cup, awarded to the winner of this race in the Annual Regatta irrespective of class
- (xi) The Officers Challenge Cup Prince of Wales' Own Sappers and Miners awarded to the winners of the Open Double Sculls in the Annual Regatta irrespective of class
- (xii) The Boating Challenge Cup awarded to the best oar of the 3rd year Civil Engineering Class or 2nd year overseer class
- (xiii) The Beer Challenge Cup, awarded to the winners of the Pair Oars Race irrespective of class

- (xiv) The Challenge Fours Cup awarded to the winners of the Fours race in the Annual Regatta irrespective of class
- (xv) The Tennis Singles Challenge Cup, awarded to the winner of the annual open Tennis Tournament, irrespective of class
- (xvi) The Tennis Doubles Challenge Cup, awarded to the winners of the annual open Tennis Tournament, irrespective of class
- (xvii) The Puri Cup, awarded to the winner of the annual open Squash Racquets Singles Tournament, Civil Engineer Class only
- (xviii) The Squash Racquets Single Runner up Cup, awarded to the runner up of the annual open Squash Racquets Tournament, Civil Engineer Class only
- (xix) The Mechanical and Electrical Engineer Class Challenge Cup, awarded to the student, irrespective of class who obtains the highest aggregate in the annual Olympic contest with the Officers and British Non commissioned Officers of the King George's Own Sappers and Miners
- (xx) The Vizianagram Cup awarded annually to the best Indian athlete of the 3rd year Civil Engineer Class
- (xxi) The Shooting Challenge Cup awarded annually to the Section of the Platoon of the University Training Corps which obtains the highest score
- (xxii) The Stampe Challenge Cup for inter-class athletics Open to all classes
- (xxiii) The Inter year class football and hockey challenge cup Open to all classes

LIST OF TEXT-BOOKS.

LIST OF TEXT-BOOKS FOR DIFFERENT CLASSES

Each student should own his own copy of each book marked with an asterisk and these are obtainable generally from the College Book Depot at 12½ per cent. off published prices. Such books will not be obtainable on loan from the College Library. Books unmarked with an asterisk are recommended for reference and such books are obtainable on loan from the College Library.

Particulars	Cost Rs. a.
CIVIL ENGINEER CLASS, I YEAR	
*"Dynamics"—Landon	5 8
*"Statics"—Puri, B. D.	5 12
*"Examples in Theory of Structures"—Landon ..	3 8
*"Theory of Structures"—Morley	8 8
*"Roorkee Treatise on Surveying"—Part I ..	3 3
*"Heat for Engineers"—Darling	7 12
*"Heat Engines"—Low	10 0
*"Theory of Machines"—Mackay	13 12
Total Rs. ..	57 15

"Rivington's Notes on Building Construction"—Parts I and II.

"Mitchell's Building Construction,"—Advanced Course

"Architectural Building Construction"—Jaggard and Drury.
Volumes I, II and III.

"M. L. S. Handbook"—Volume I, Part I.

"Chamber's Mathematical Tables."

"Dynamics"—Ramsey, Part I.

Particulars

- "Hydrostatics"—Jessop and Gaunt
 "Calculus"—Lamb
 "Elementary Calculus"—B. D. I. un
 "Modern Framed Structures"—Johnson Bryan and Turneauro,
 Volumes I II and III
 "Stresses in Framed Structures"—Hool and Kinn
 "Analysis of Engineering Structures"—P pper and Baker
 "Applied Elasticity"—Timoshenko and Leisell
 "Strength of Materials"—Case
 "Hydraulics"—F. C. Lea
 "Applied Hydraulics"—Ad Jison
 "Surveying"—Norman Thomas
 "Chemistry of Materials"—Lighon
 "Metallography"—Desch
 "Metallurgy of Common Metals"—Austin
 "Cements, Limes and Plasters"—Finkel
 "Heat and Principles of Thermo-dynamics"—Draper
 "Steam and Steam Engine"—R pper
 "Theory of Machines"—Toft and Hersey
 "Technical Electricity"—Davidge and Hutel in o

Cost
Rs a

CIVIL ENGINEER CLASS II YEAR

"Structural Engineering"—Husband and Harby	10 12
"Roorkee Treatise on Bridges"	7 0
"Military Engineering (Volume V) Roads 1935"	5 0
"Roorkee Treatise on Railways"	1
"Roorkee Treatise on Surveying Part II"	2 10
"Callendar's Steam Tables"	2 4
"Mollier's Diagrams"	1 4
"Maccall's Continuous Current"	9 8
"Maccall's Alternating Current"	9 8
"Applied Thermodynamics"—Robinson	10 12
"Hydraulics by Lewitt"	8 10
"Indian Water Works Practice by Banerjee"	

Total Rs

72 5

"Roorkee Treatise on Estimating"

"War Office Manual of Field Engineering Volume II"

Particulars

- "Engineering Design"—Fordham
 "Competitive Design of Steel Structures"—Russell and Dowell.
 "Structural Engineering"—Kirkham.
 "Irrigation Pocket Book"—Buckler
 "River Discharges"—Hoyl and Grover.
 "Waterworks Handbook"—Flinn, Weston and Bogert
 "Rainfall Reservoirs and Water Supply"—Binnie
 "Road Engineering"—Leeming
 "Differential Equations"—Miller.
 "Differential Equations"—Murray.
 "Plane and Geodetic Surveying"—Clark, Volume II
 "Text book of Topographical Surveying"—Close.
 "Elements of Curve Design"—Royal Dawson.
 "Railway Surveying and Permanent Way Work"—Perrott and Badger
 "Petrology"—Hatch
 "Geology"—Giekie
 "Balancing of Engines"—Dalby.
 "Design of Electrical Machinery"—Clayton
 "Electrical Engineering"—Thomalen.
 "Permanent Way"—Cole.
 "Stream Gauging"—Liddell
 "Dissipation of Energy below Falls"—Ingls and Jogleker.
 "Hydraulic Structures"—Volumes I and II Schokhlsch.
 "Irrigation Canal Falls"—Montague.
 "Fluming"—Montague.

Cost
Rs. a.

CIVIL ENGINEER CLASS, III YEAR

* "Elements of Reinforced Concrete Design"—Adams	5	0
** "Concrete Plain and Reinforced " by Taylor Thompson, Volume I	27	0
** "Sewers " by Bevan and Rees	6	0
** "Sewage Purification and Disposal " by Kershaw	..	..
Total Rs.	..	<u>38 0</u>

Part ulars

- " Modern sewage Treatment —Francis
- War Department Manual on Drainage
- Steam Turbines —Heaton
- Heat Engines —Inchley
- Alternating Current "—Kemp
- Transmission of Alternating Current —Rapson
- Diagnosis of Troubles in Electrical Machinery —Mills Walker
- " Protection of Alternating Current Circuits —Stubbings
- " Reinforced Concrete Bridge Design —Adams and Christie
- Reinforced Concrete Bridges —Scott
- British Standard Specifications for Portland Cement
- " The Transmission and Distribution of Electrical Energy —H. Cotton.
- Note on flumed aqueducts —Inglis
- Notes on standing Wave Illumes and Flume Meter Falls —Inglis
- Energy of Flow Irrigation and Momentum Diagrams —Montague
- " Design of Weirs on Permeable Foundations —A. N. Klesla
- Design of Concrete Structures —Urquhart and O'Rourke
- Surveying —Norman Thomas
- Plane and Geodetic Surveying Volumes I and II—Clark
- Thermo-dynamics for Engineers —Ewing
- Steam Power —Dalby
- Balance of Engines —Dalby

Particulars	Cost Rs. a.
OVERSEER CLASS, I YEAR	
"Roorkee Treatise on Earthwork"	1 12
"Building Construction, Advanced Course"—Micheil	7 14
"Building Construction, Elementary Course"—Micheil.. ..	4 14
"Elementary Trigonometry"—Loney	3 1
"Elementary Mensuration"—Petrepoint, Parts I and II	3 14
"Elements of Statics and Dynamics"	6 8
"Roorkee Treatise on Surveying" Part I	3 1
"Heat Engines"—Low	10 0
"Class Book of Physics"—Gregory and Hadley, Parts III, IV and V (Vol. I), Parts VI, VII and VIII (Vol. I) at Rs. 2 each	4 0
"Logarithmic Tables"—College Manual	1 2
Total Rs.	46 8

"Mechanics for Engineers"—Morley.

"M. E. S. Handbook"—Volume I, Part I.

OVERSEER CLASS, II YEAR

"Building Mechanics"—Sheppard	5 2
"Military Engineering (Vol. V) Roads, 1935" ..	5 0
"Roorkee Treatise on Railways"	5 1
"Roorkee Treatise on Bridges"	7 0
"Roorkee Treatise on Irrigation", Volume I	4 6
"Sewers and Sewerage"—Whyatt	1 12
"U. P. Irrigation Technical Paper no. 1 (Design of Channels)"—G. Lacey	0 14
"Roorkee Treatise on Estimating"	6 9
"Elementary Hydraulics for Technical Students"—F. C. Lea	4 14
"Elements of Reinforced Concrete" by Adams	5 0
Total Rs.	46 0

Particulars

War Office Manual of Field Engineering Volume II

Sewage Disposal —Jershaw

Strength and Elasticity of Structural Members —R J Woods

Structural Engineering —Husland and Harby

* Reinforced Concrete Simply Explained —Oscar Faber

Examples of Reinforced Concrete —Oscar Faber

DUPLICATE CERTIFICATES

For duplicate diplomas and certificates the following charges are levied :

			Rs.
Diploma	..	..	24
As Assistant Engineer	..	..	24
As Upper Subordinate	..	..	16
As Overseer	..	..	16
As Lower Subordinate	..	..	8
As Draughtsman	.	..	8

SUBSIDIARY DEPARTMENTS OF THE COLLEGE.

LIBRARY.

The College Library contains about 27,000 volumes classified as under *

PART I.

Scientific and Professional Works

Class A A	Pure Mathematic.	Class F	Mental, Moral and
, AB	Applied Mathema		Social Science
	tics	„ G	Civil Engineering
„ B	Physics	, H	Surveying and
C	Chemistry		Drawing
D	Geology Minera	, J	Electrical Engineer-
	logy and Palaeon		ing
	tology	K	Mechanical Engi
E	Other Branches of		neering
	Natural Science	„ L	Other Professional
			Works

PART II.

General Literature, Art, Industries, etc

Class M	Recreations and	Class S	Commerce and Eco
	Amusements		nomics
N	Geography, Ethno-	„ T	Agriculture, Fores-
	graphy and Tra		try and Garden
	vel		ing
O	History	„ U	General Scientific
„ P	Literature and		and Professional
	Philology		Journals and
Q	Arts and Trades		Transactions
„ R	Fine Arts	„ V	Indian Government
			Publications

*The above is the existing classification but a new classification according to the Dewey System is now in progress

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PART I

Scientific and Professional Works

Class AA	Pure Mathematic	Class F	Mental Moral and
„ AB	Applied Mathema		Social Science
	tics	G	Civil Engineering
„ B	Physics	H	Surveying and
C	Chemistry		Drawing
D	Geology Mineralogy and Palaeontology	J	Electrical Engineering
E	Other Branches of Natural Science	K	Mechanical Engineering
		L	Other Professional Works

PART II

General Literature, Art, Industries etc

Class M	Recreations and Amusements	Class S	Commerce and Economics
N	Geography Ethnography and Travel	T	Agriculture Forestry and Gardening
O	History	U	General Scientific and Professional Journals and Transactions
„ P	Literature and Philology	V	Indian Government Publications
Q	Arts and Trades		
R	Fine Arts		

*The above is the existing classification but a new classification according to the Dewey System is now in progress

The Library is free to all gazetted Government officers and other outstation residents in special cases can obtain books on application

There is a printed Catalogue, and a Supplement is issued every year, which can be obtained on application to the College office

THE COLLEGE REGISTER OF EMPLOYMENT

The College registers the names of, and supplies employers with the names of approved engineers, upper subordinates overseers, lower subordinates and draftsmen

THE FOLLOWING INSTITUTIONS ARE ALSO MAINTAINED IN CONNEXION WITH THE COLLEGE

1	CIVIL ENGINEERING MODEL ROOMS	7	DEHRA DUN CONTINGENT
2	METEOROLOGICAL OFFICE		AUXILIARY FORCE INDIA
3	WATER WORKS		ROORKEE DETACHMENT
4	COLLEGE DAIRY	8	NO 15 PLATOON 3RD
5	COLLEGE DISPENSARY		UNITED PROVINCES BAT
6	SPORTS AND ATHLETIC CLUB		TALION UNIVERSITY
			TRAINING CORPS, INDIA
			TERRITORIAL FORCE

List of Donations to the Thomason College for prizes and other Miscellaneous purposes

Year	Names	Rs
1854	Subscribers to the Thomason Testimonial fund	2500
"	Sr Probant T Cautley R C B	2000
1856	Leut. T Wright 46th N I	100
"	" W Marshall 45th N I	100
"	" T F Dickens Artillery	100
"	" G Dale Artillery	100
"	Ensign H L. Wain 24th N I	100
"	Leut. F L Farle Artillery	100
"	" F Smalley, 30th N I	100
"	" C B Wish 14th Light Dragoons	100
"	" A. B Melville 67th N I	100
1860	" L. C Garstin 23th N I	100
"	" J S Wood 63rd Highlanders	100
1862	Capt W H Macleay 5th Highlanders	100
1864	Leut. I C Sheppard Generalist Infantry	100
1865	" I W Samuels " "	100
"	" B J Larnor 23rd N I	100
"	H H the Maharaja of Kachhroo	500
"	Leut J E Sandeman Generalist Infantry	100
"	Capt F G S Parker 64th Regiment	100
"	" F D M. Brown v o, 101st Regiment	100
"	Leut L. Wavell, 22nd N I	100
"	Peter May Esq	120
1867	Leut W S Livingston, M A 7th Hussars	200
1868	" E C Elliston, 58th Regiment	100
1869	Colonel P MacLagan, R E (for Mackay Prize Endowment)	1000
"	Teser Chaudar Sirkar	50
"	Sergt V S Sela r, R E	50
"	G W Dowsworth Esq	100
"	J Mol, Esq	50
"	J Lyons, Esq	50
"	S Fraser Esq	20
"	Sergt P Kelly	50
"	Leut G Nolan	100
"	J Ferris Esq	20
"	Lala B hari Lal	100
"	C Chisholm Esq	30
"	H Mitchell, Esq	20

Year	Donor	Rs
1862	T Gray Esq	25
"	J Southon, Esq	25
"	Sergt A Forsyth	25
"	J H Chapman Esq	25
"	G McArthur Esq	50
"	J Gilan, Esq	25
"	W Phillips, Esq	200
"	C Collogher Esq	250
1860	Rai Bahadur Kashva Lal (for Kanyas Lal Prize Endowment)	100
"	Capt C E D Brandon, 3th P N I	100
"	D Murray Thomason, M.D F.R.S.E.	200
1861	Lieut G W Martin 80th Regiment	100
1863	W Willocks, Esq (to Engineer Students Mess)	100
"	E Hodges, Esq	100
"	H H the Maharaja of Vizianagram	1000
1864	R. B Smart Esq (Per Sur) (for Surveying Prize)	100
"	P W L Hawkins, Esq (to Engineer Students Mess)	100
"	Lieut W T McLoughlin 45th Regiment	100
"	Pegunald H McLoughlin, Esq	5
1865	V B Paterson, Esq	190
"	S Jarman, Esq	
"	F J McLoughlin, Esq	
"	P L Campbell, Esq	
"	P W L Toozs, Esq	
"	A E Adams Esq	100
"	Lieut S M Marcock R.E. (for Mechanism Prize)	50
"	P B Smart Esq (Rev Sur) (for Surveying Prize)	100
"	W A Francken Esq., Assistant Superintendent of Canal Foundry (to College Recreation Fund)	50
1866	Lieut S M Marcock R.E. (for Mechanism Prize)	50
"	Capt Allan Cunningham, R.E. (for Applied Mathematics Prize)	50
"	Subscribers to heavy Memorial (balance of subscriptions after erecting Tablet)	1000
1867	H H the Maharaja of Jummoo and Kashmir	1000
"	Raja of Puduk	100
"	Captain Allan Cunningham, R.E. (for Applied Mathematics Prize)	50
"	Rai Bahadur Kashva Lal (to change the Prize Endowment of 1860 to the "P. Bahadur Kanyas Lal Gold Medal similar to Thomason Medal)	1000
"	Lieut S. M. Marcock, R.E. (for Mechanism Prize)	50
"	Capt J G Moller R.E. (yearly since 1863 at 1000)	50
"	Majr A. M. B. Smith, R.E. (for Note Books and Envelopes Prizes)	25
"	Tarrant Esq (to Engineer Students Mess)	100

Year	Names	Rs
1878	Colonel J G Medley, R.E. (for Civil Engineering Prize)	50
"	Lieut S M Maycock (for Mechanism Prize)	50
"	Major A M Brandreth, R.E. (for Note Books and English Prizes)	50
"	Anonymous from Jhansi	100
1880	Colonel J G Medley, R.E. (for Civil Engineering Prize)	0
"	Lieut S M Maycock, R.E. (for Surveying Prize)	50
"	Major A. M. Brandreth, R.E. (for Note Books English and Romanised Urdu Prizes)	70
"	Babu Krishna Chandra Jandari (for Mathematics)	50
1881	Colonel J G Medley, R.E. (for Civil Engineering Prize)	50
"	Lieut S M Maycock, R.E. (for Surveying Prize)	50
"	Major A M Brandreth, R.E. (for Note Books English and Romanised Urdu Prizes)	70
"	W P. Howden, Esq (to Engineer Students Mess)	100
1882	Colonel J G Medley, R.E. (for Civil Engineering Prize)	50
"	Lieut Col A M Brandreth R.E. (for Note Books English and Romanised Urdu Prizes)	70
"	Lieut J H C Harrison, R.E. (to Engineer Students Mess)	100
"	" J H C Harrison, R.E. (for Surveying Prize)	50
1883	Colonel J G Medley, R.E. (for Civil Engineering Prize)	50
"	Lieut Col A M Brandreth R.E. (for Note Books English and Romanised Urdu Prizes)	70
"	Lieut J H C Harrison, R.E. (for Surveying Prize)	50
1884	Lieut Col A M Brandreth R.E. (for Civil Engineering Note Books and English Prizes)	100
1885	Lieut Col A M Brandreth R.E. (for Civil Engineering Note Books and Estimating Prizes)	100
"	Lala Bihari Lal (for Language Prize)	15
1886	Lieut Col A. M. Brandreth R.E. (for Civil Engineering Note Books and Estimating Prizes)	100
"	Lala Bihari Lal (for Language Prize)	15
1887	Lieut Col A M Brandreth R.E. (for Civil Engineering Note Books and Estimating Prizes)	150
"	Lala Bihari Lal (for Language Prize)	15
"	Rai Bahadur Kanhya Lal to fund Silver Medals for Indians of Upper and Lower Subordinate Classes	1,000
1888	Lieut Col A M Brandreth R.E. (for Civil Engineering, Note Books and Estimating Prizes)	100
"	Lala Bihari Lal (for Language Prize)	15
"	Rai Bahadur Kanhya Lal	100
1889	Lieut Col A M Brandreth R.E. (for Civil Engineering, Note Books and Estimating Prizes)	100
"	Lala Bihari Lal (for Language Prize)	15
1890	Lieut Col A M Brandreth R.E. (for Civil Engineering, Note Books and Estimating Prizes)	100

Year	Names	Rs.
1890	Lala Bihari Lal (for Language Prize)	15
1891	Lieut.-Col. A. M. Brandreth, R.E. (for Civil Engineering, Note Books and Estimating Prizes)	100
..	Rai Bahadur Behari Lal (for Language Prize)	15
1892	Colonel F. D. M. Brown, V.C. (for Civil Engineering Prize)	50
..	Rai Bahadur Bihari Lal (for Language Prize)	15
1893	Major J. Clibborn (for Civil Engineering Prize)	50
..	Rai Bahadur Bihari Lal (for Language Prize)	15
1894	Major J. Clibborn (for Civil Engineering Prize)	50
..	Rai Bahadur Bihari Lal (for Language Prize)	15
1895	Major J. Clibborn (for Civil Engineering Prize)	50
..	Rai Bahadur Bihari Lal (for Language Prize)	15
1896	Lieut. Col. J. Clibborn (for Civil Engineering Prize)	50
..	H. E. the Prime Minister of Nepal (for a Tower Clock)	2,500
1897	Lieut.-Col. J. Clibborn (for Civil Engineering Prize)	50
1898	Lieut. H. B. D. Campbell, R.E. (for Civil Engineering Prize)	12
..	Rai Bahadur Govind Jas (for English)	15
1899—1900	Lieut. Col. J. Clibborn (for Civil Engineering Prize)	12
1900—1922—1924	Babu Amar Nath Dutt, B.A., LL.B. (for best Indian student obtaining Sub Engineer's certificate, U. S. class)	15
1900—1917	Lala Ram Sahai (for Language Prize, U. S. class)	15
1903	Members of the Fairley Memorial Prize Committee (for Applied Mechanics, U. S. class)	500
1909—1912	Sirdar Kishan Singh (for Drawing, Mechanical Apprentices class)	11
1909	Calcott Reilly Memorial Fund has been transferred to this College on the abolition of the Royal Indian Engineering College, Coopers Hill, England (Gold Medal for Applied Mechanics)	1,500
..	Donations from Ghulam Nabi and other P. W. Subordinates to found the Sullivan Scholarship Medal Endowment Fund for the Lower Subordinates of this College	2,000
1911—1917	Rai Nathi Mal Sahib (for best senior Indian student, U. S. class)	95
1911—1914	Serjeant Hem Chander Bugh (for Natural Science, Mechanical Apprentices class)	15
1921—1923	Sir S. duty Crookshank for cricket	20
1922—1927	Sushila and J. Mitra Memorial Silver Medal	15
1923—24	Babu Amar Nath Dutt, B.A., LL.B. (for best Indian student in Civil Engineer class in Civil Engineering Degree)	15
1923	H. F. Sir F. Ward Marazion's prize (for best Civil Engineer class student in Civil Engineering Degree)	100
1924—1925	Babu Amar Nath Dutt, B.A., LL.B. (for best Indian student obtaining Higher Certificate in Operative Class)	15
1925	G. L. W. Esq. (for the best performance in the Thomasonian Society)	25

LIST OF DONATIONS

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Year	Names		Rs.
1932	Babu Amar Nath Dutt, B.A., LL.B. (for best Indian student obtaining Higher Certificate in Overseer Class)		16/4
1933	G Lacey, Esq. (for the best performance in the Thomasonian Society)		25
..	Babu Amar Nath Dutt, B.A., LL.B. (for best Indian student obtaining Higher Certificate in Overseer Class)		16 /4
1934	Ditto	ditto	16/4
1935	Ditto	ditto	16/4
1936	Ditto	ditto	9 /10
..	G Lacey, Esq. (for the most capable speaker in the Thomasonian Society)		25
1937	Babu Amar Nath Dutt, B.A., LL.B. (for best Indian student obtaining Higher Certificate in Overseer Class)		15
1938	Ditto	ditto	13
..	G Lacey, Esq. (for the most capable speaker in the Thomasonian Society)		25
..	Lala Puran Mal, retired Assistant Engineer, Public Health Department for two silver medals in Public Health Engineering for Civil Engineering and Overseer Classes respectively		500
	Lala Puran Mal also paid for cost of dist. of above silver medals	..	212
1939	Babu Amar Nath Dutt B.A. LL.B. (for best Indian student obtaining Higher Certificate in Overseer Class)		10
..	G Lacey Esq. (for the most capable speaker in the Thomasonian Society)		25
1940	Babu Amar Nath Dutt B.A., LL.B. (for best Indian student obtaining Higher Certificate in Overseer Class)		10
..	G Lacey, Esq. (for the most capable speaker in the Thomasonian Society)		25
1941	Babu Amar Nath Dutt, B.A., LL.B. (for best Indian student obtaining Higher Certificate in Overseer Class)		10
..	G Lacey Esq., B.A.C. (for the most capable speaker in the Thomasonian Society)		25

RULES OF THE ADVISORY COUNCIL, THOMAS- SON COLLEGE OF CIVIL ENGINEERING, ROORKEE.

—

Re constituted under G O No 556G/XV—555 1932, dated June 2, 1933, copy received with Director of Public Instruction, letter No G/1315, dated June 2, 1933 Rules approved in Director of Public Instruction, U P letter No G/1675, dated July 26, 1933 and G O, U P Edn Dept no 168C/XV—555, dated December 15, 1933

1 The function of the Council will be to advise Government on questions of policy, organization, finance, staff buildings, equipment, the formation or re constitution of classes, curricula, rules of admission and any other subject connected with the College on which Government may require its advice. As the Council will be closely associated with the College and will visit it periodically, it will also be in a position to take the initiative in suggesting improvements and reforms in respect of any of the above matters

2 The Council will consist of —

- (1) The Chief Engineer, Public Works Department
Irrigation Branch
- (2) The Chief Engineer, Public Works Department,
Buildings and Roads Branch
- 3) The Director of Public Instruction, United Provinces
- (4) & (5) Two non-official members, elected by the
Legislative Assembly United Provinces
- (6) A representative of the United Provinces branch of
the Institution of Engineers India

- (7) A representative of University Education, nominated by the United Provinces Government
(8) A representative of the Institution of Civil Engineers London
(9) The Principal, H. M. S. College, Roorkee

3 The senior of the two Chief Engineers shall be the President of the Council

4 The Principal of the College will be *ex officio* Secretary of the Council and shall have a right to vote

5 The term of office of non-official members of this Council shall be for a period of three years, provided that a member shall cease to be a member of the Advisory Council when he ceases to be a member of the body which he represents, a new election shall be held by each new Legislative Assembly at its first session, and, at the same time, other bodies shall be required to make their nominations

6 The committee shall meet at least once a year at Roorkee on a date to be fixed by the Principal after informal consultation with the President. The Council may also hold any other meetings whenever it appears desirable to do so, at any place in the United Provinces to be fixed by the President.

7 Notice of the time and place of meeting will be issued to each member by the Secretary at least 6 weeks in advance.

8 Four members of the Council, exclusive of the Principal, who must always be present, shall constitute a quorum

" " " " • Id the President consider the
to discuss the issue in point
• • • opinion of the other members

9 The Secretary of the Council may in other cases, submit matters for the opinion of the C corre-
pondence

10 The proceedings of the Council after approval, will be written in a consolidated form and a typed copy of the same will be circulated to all the members and one copy submitted to Government through the Director of Public Instruction for orders

11 The Council is authorized to call in experts for the consideration of any question on which experts' advice is required, and to recommend the appointment of Sub-Committees to deal with particular questions or with special branches of the work of the College. Before consulting any expert whom it is proposed to remunerate for his advice the Council should obtain the sanction of Government to the payment of such remuneration

12 The official members when attending meetings will draw travelling allowance under the rules. The non-official members will each be paid the ordinary travelling and daily allowance admissible to an officer of the first class

13 It is expected of members that they will, from time to time, pay personal visits of inspection to the College and thus keep in touch with its circumstances, its work and its needs and aspirations

RULES OF THE BOARD OF STUDIES, THOMAS- SON COLLEGE OF CIVIL ENGINEERING, ROORKEE.

Approved by the Government, vide letters of the Director of Public Instruction nos G/2423, G/3358, and G/3828, dated October 23, 1925 September, 1934 and November 14 1938 respectively

1 The members of the Board will include the Principal all Professors and Assistant Professors of the College. The Principal will be *ex officio* President. A Lecturer or Lecturers of the College may at the discretion of the President be co-opted for any particular meeting of the Board.

2 The meetings of the Board will be convened by order of the President.

3 The Secretary will be elected from among the members of the Board of Studies.

4 The Secretary will circulate, before each meeting, a copy of the agenda, together with all the necessary papers relating to subjects entered for discussion.

5 Any member, with the previous sanction of the President, may bring forward for discussion any subject of an academic nature pertaining to the College work.

6 The Board of Studies will be an *Advisory Body*; it will not exercise any control over discipline, but, in consultation with the President, will assist him in —

(a) The appointment of moderators for each external paper

(b) The scrutiny of all sessional and final pass lists of the Civil Engineer and Overseer classes, and the award of grace marks under the procedure

as laid down for their allotment by Government order.

(c) The allotment of marks for general fitness, total 400, to the students of the 3rd year, civil engineer class just prior to their completing their course.

(d) The preparation or revision of all time-tables, syllabuses and courses of study of all classes as the President may deem necessary.

7. The President, at his discretion, may at any time consult the Board on any other subject affecting the College work.

8 The minutes of each meeting will be recorded by the Secretary, and read and confirmed at the following meeting.

STANDING ORDERS

OF THE

**Thomason College of Civil Engineering, Roorkee,
1941-42**

and till further notice.

General rules.

Each student upon admission to the College must make himself familiar with the following orders, and in case of any breach of these orders the plea of ignorance will not be entertained

1 Students on arrival will report as follows —

All students of the Civil Engineer Class, to the Personal Assistant to the Principal, other students, to the Superintendent of Overseer Class Hostels, who will allot them quarters

2 Each student will be responsible for the state of the quarters allotted to him, and will be charged for the repair of any damage which they may sustain beyond fair and unavoidable wear and tear. Accidental injury or disrepair should be immediately brought to the notice of the Hostel Superintendent concerned with a view to its rectification. All students must vacate College quarters during the long vacation

3 No visitors, other than students of the class to which the occupier belongs, are to enter students' quarters without the sanction of the Personal Assistant to the Principal

4 Furniture, at a nominal rent, will, as far as possible, be provided for students of the Civil Engineer Class for use in the hostels, and damage to the same will be assessed by the

Personal Assistant to the Principal Such furniture is not to be removed from the rooms, or used for any other purpose without permission Special furniture will be provided for the various camps Students of classes, other than the Civil Engineer Class will make their own arrangements for furniture

5 All students have to engage their own servants and immediately upon appointment have to report the names of same on the correct form—obtainable from the College office—to the Personal Assistant to the Principal The Personal Assistant maintains a black list of servants and if any student has appointed a servant whose name is on the black list the student will have to dismiss such servant at once and appoint another following the same procedure Without the Principal's sanction no unauthorized persons servants or guests will be permitted to reside in the hostels or servants quarters or to enter them after nightfall The wages of private servants must be paid by the 10th of each month following that for which they are due Students are required to take a receipt for every payment made by them to their servants whether such payments relate to wages or other accounts

6 All information regarding text books courses of study, dates of examinations attendances etc will be found in the College Calendar and pamphlets of the courses of study and syllabi of the various classes

7 Students are reminded that this is a College for young men and not a school for boys Though all needful assistance will be given to those really anxious to work it is entirely on their own exertions that their success must depend and in cases of failure they will only have themselves to blame They are however specially warned against idleness

in their first year under the expectation that they can pick up in the second or third. The course is so laid out, that continuous application is required the whole time. Students are reminded that if they fail to make sufficient progress in their studies or fail to pay all College dues* on demand, they are liable to be suspended or removed from the College at any time.

The guardian of any student so suspended or removed will be held responsible for the payment of any debts whatsoever which may have been contracted while the student was in the College. Although every precaution is taken to prevent students from running into debt, the College authorities are in no way to be considered responsible for such debt.

8 All students will attend the College regularly for studies at the hours laid down in the time tables, and for outdoor duties at the times prescribed by the Officer in-charge of their class or their Professors, Lecturers or Instructors. No student may be absent from his quarters in the College lines without leave after 9 p m during the first term of any session, and 10 p m during the second term of any session, or before sunrise. The punishment for breaking this rule will be of the severest description. To enable the authorities to check this rule no doors should be locked at the times specified.

* NOTE.—The words "College Dues" include—

- (i) College fee
- (ii) Rent and conservancy
- (iii) Rent of College furniture
- (iv) Electric light charges
- (v) Recreation fund subscription and cost of articles pur

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above Students are permitted to sleep immediately outside and in front of their quarters during the hot weather

9 All smoking, spitting, whistling or making any loud noise in the College class room lecture theatre laboratories or corridors etc is strictly prohibited Students should be careful to do nothing which may interrupt or distract others at work

10 No debts other than College dues (see note under paragraph 7) are allowed to be contracted Students are strictly cautioned against all irregularities in money matters Flagrant cases which tend to bring discredit on the College are liable to result in severe penalties being imposed upon offending student

11 All due from students recoverable by the College whether payable to Government or to private funds person or body must for every month be punctually discharged in full before the 21st. of that month failing which the students will be fined marks suspended or removed at the discretion of the Principal

12 The Principal and the Officers in-charge of classes will always be glad to give any help and advice in their power and students are earnestly requested to apply to one or the other in any case where they are in doubt as to the right course before taking action Students should consult the Officers in-charge of their classes for advice before referring the case to the Principal see Order No 14

13 Any case of personal violence by one student to another or by a student to any other person will be punished severely A student is never to take the law into his own hand but is to report any grievance direct to the Officer in charge of his class for enquiry

14 Students wishing to see the Principal should apply for permission through the Officer in-charge of their class. Direct application to the Principal is contrary to orders. Petitions signed by a number of students are not allowed. Any petition affecting a class or a number of students, should be brought to notice by the senior student concerned.

15 Students are strongly recommended to take a fair amount of bodily exercise regularly, too much poring over books is very apt to muddle the brain, and the active duties of the Engineering profession require a man to be as well trained physically as mentally to enable him to discharge them properly. Marks are allotted for games, etc.

16 The Library is open daily at the hours specified in the Library rules. Students are invited to avail themselves of it. The periodicals and papers placed on the Reading Room tables for general use are not to be removed from the rooms. Loud talking in the Library or Reading Rooms is strictly prohibited.

17 Students are forbidden, even though possessing a licence to bring firearms into their quarters. Firearms may, with the permission of the Principal, be stored in the College armoury. No student is to bring any firearms to the College without first obtaining the Principal's permission.

18 Students may keep dogs, but they must not be left loose if unattended. Dogs must invariably be chained up at night. All dogs must be registered and numbered in a register kept by the Personal Assistant to the Principal and must wear a collar and a special badge. Any dog found within the lines without a collar and badge is liable to be shot. The Personal Assistant will supply the necessary badges on payment. These badges may be returned at any time, when not needed and payment will be refunded.

19 Dancing, singing parties, and the playing of musical instruments in the open are not allowed without the special sanction of the Principal in every case

20 Students are warned to be very careful to have their quarters securely locked when they are absent from them or when sleeping outside during the hot weather Any case of theft either of the property of a student or of Government must be reported immediately to the Personal Assistant to the Principal The Personal Assistant to the Principal will at once request the police to take prompt action He will inform the Officer in-charge of the class concerned at the first opportunity during College hours or earlier if he considers it to be necessary *

21 All students are expected at all times to be dressed in a neat and tidy manner, whether in or out of class, and must not appear in class in flannels or shorts used for games, etc without special permission There will be no objection to students wearing khaki shorts and long stockings during the summer, viz from April 1

22 Students should bear in mind that this is a competitive College, and that any means tending to give any one student an unfair advantage must render the competition unequal and in time reduce the value of diplomas and certificates granted and affect the good name of the College For any breach of this rule severe action will be taken probably expulsion

23 Private servants are not allowed to enter the class rooms Drawing boards, etc should be taken from and made over to, servants in the verandah by the student to whom they belong Private servants are not allowed to loiter in the verandahs of the College and students are expected to see that this rule is enforced

24 Students must occupy seats at the numbered tables in the order of their standing in the class. Particular care should be taken not to splash ink on the tables, walls or floors or to deface the furniture of classrooms and lecture-rooms in any way by writing or cutting.

25 Students wishing to have baggage or parcels brought to the College from the Railway Station should give notice to the Personal Assistant to the Principal before 2 p.m. on the day the goods arrive. This notice should be in writing, giving the number of their quarters, and a detail of the baggage or parcel. The railway receipt, signed, and the amount due for railway carriage, should be sent with the notice.

26 All students on meeting the Principal, or any member of the staff of the College, will salute them in a respectful manner. All students will address members of the College teaching staff, Europeans and Indians, as "Sir".

27 In any class the student standing first in order of merit will be the senior. The senior of a class is responsible for reporting promptly to the Officer-in-charge of his class any unusual occurrences or circumstances connected with his class. He will take charge of survey parties and arrange all details in camps.

28 Fruit on trees on the College Estate is not to be plucked by students or their servants.

29 Two guest rooms, one for the Civil Engineer and the other for the Overseer Class, are available for the use of the relatives of students on application to the Personal Assistant to the Principal, who will be glad to help students in accommodating any relatives provided reasonable timely notice is given to him.

30 Students are not allowed to be members of outside societies nor are they allowed to join in discussions on public matters except such as are organized by the Officers in-charge of their class

31 Students are expressly forbidden to approach examiners whether internal or external with enquiries concerning marks either prior to or subsequent to publication. After publication should any student think some error has been made he is to submit an application in writing to the Principal on the matter through the Officer in-charge of his class. Any student not observing this rule will be punished severely probably with expulsion.

32 Students will not be permitted to appear for any external examination during their College course except to complete a university examination incompleated through sickness prior to their admission.

33 The attendance of all students at the annual College Sports and Regatta is compulsory.

34 There are the following shops generally on the College Estate —

(i) Banva s (ii) Tailor s (iii) Shoemaker s (iv) Sweet meat seller s as well as a General stores Bakery Aerated water Dairy. These have been established for the benefit of the students and under the strict supervision of the College authorities. Students are requested in their own interests to patronise these in preference to others.

Leave

35 (i) No student is allowed to leave the station without first obtaining written sanction. All applications for leave must be submitted on the correct Leave application forms.

NOTE—For purposes of this order Salraupur and Lhaksar may be taken as within the station.

which forms can be obtained from the College office. The leave application form duly filled in must, in all cases, be first submitted to the Officer-in-charge of the class, who will submit the application to the Principal except those applications for leave which are covered by College holidays. Such applications the Officer-in-charge can dispose of.

Should the leave be sanctioned, it is the duty of the Officer-in-charge of the class to carefully scrutinize the "leave application" form noting whether it is fully and correctly entered up. It is very essential that the student's address, while on leave, be given. The Officer-in-charge of the class will then hand the "leave application" form to the student with orders to the student to give it *personally* to his hostel superintendent before proceeding on leave. The leave application form will remain in the custody of the hostel superintendent while the student is away. Upon return from leave the student will go to his hostel superintendent and sign his leave application form on the back stating the time and date of his return from leave. The hostel superintendent will then send the form to the Officer-in-charge of the class, making any notes on same he may think may be necessary.

In ordinary circumstances all applications for leave must be submitted before noon on the day prior to that on which leave is required. All applications for leave submitted after this time should only be recommended or sanctioned by the Officer-in-charge of the class, as the case may be, in very special circumstances regarding which the student has produced due evidence.

35 (ii) When the period of leave required includes any College class attendance periods or College functions at which the attendance of a student is compulsory, the student

before submitting his "leave application" form to the Officer-in charge of his class must obtain on same the initials of the members of the staff concerned with the College class attendance periods or compulsory College functions. The initials of these members of the staff will signify approval to the grant of the leave, unless they note otherwise.

35 (iii) Students are warned that absence without leave is a serious breach of rules. At the commencement of any College attendance period the senior student present will at once report to the member of the staff taking such period the absence or sickness of any student.

35 (iv) To obtain leave and proceed on short leave, and then to ask for an extension, *except on the most urgent grounds*, is a practice considered highly objectionable in Government service and the College authorities take the same view. The mere dispatch of an application for extension is no excuse for failure to return on the proper date. A sanction to the extension by the Principal is necessary, and to obtain this, each application should be accompanied by a stamped addressed envelope and all telegrams are to be prepaid. These should be dispatched to the Principal early enough for the applicant to receive a reply in time. *If no reply is received the application for extension should be considered as refused.* Students who, being on leave fail to return to the College on the day on which the leave expires without receiving sanction to an extension, will be considered guilty of disobedience of orders and will be punished accordingly.

35 (v) Students are not required to apply for leave to enjoy sanctioned holidays in the Station or for the Vacation out of the Station. No leave will be given to attend the weddings of relatives.

Sickness.

36 (i) The College Medical Officer will attend at the College Hospital at the following times:—

- | | | |
|---------------------------|---|-------------------|
| (i) 1st half session | } | Daily 7 30 a m to |
| October 16 to February 14 | | 8 30 a m |
| (ii) 2nd half session | } | Daily 7 a m to |
| February 15 to July 14 | | 8 a m |
| (iii) Vacation | } | Daily 7 a m to |
| July 15 to October 15 | | 8 a m |

The College Hospital Compounder will attend at the College Hospital daily throughout the year from 7 a m to 12 noon and in addition during the—

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|------------------------------------|----------------------------|
| (i) 1st half session | Daily 5 p.m to 6 p.m |
| (ii) 2nd half session and vacation | Daily 5 30 p m to 6 30 p m |

The College Medical Officer as soon as possible after his hours of attendance will submit his daily sick reports as follows —

- (i) One to the Principal reporting *all* who are sick
- (ii) One to the Officer in-charge of the Civil Engineer class reporting only those Civil Engineer students who are sick
- (iii) One to the Headmaster, Overseer class, reporting only those Overseer class students who are sick.
- (iv) One to the Officer in charge Physical training when the same is going on, including only names of Civil Engineer and Overseer class students who are sick or are exempted from Physical training

36 (ii) (a) All students who require medical attendance are to present themselves at the College Hospital during the hours of attendance of the College Medical Officer

(b) *Those who are too ill to attend personally are to send notice to the College Medical Officer at the College Hospital during his hours of attendance, when the Medical Officer will visit them at their quarters*

(c) Those who fall ill either before or after the hours of attendance of the College Medical Officer are to report themselves to the College Hospital and to see the Compounder. They are then to carry out the instructions given them by the Compounder, who is to report all such cases to the Medical Officer when next in attendance. The Medical Officer will keep in attendance at the College Hospital a peon at all hours when the Compounder is not present, whose duty it will be to call the Compounder from his quarters.

(d) If a student be compelled to absent himself from class attendance on account of illness or if during College hours obtains permission to leave for the same reason, he is to report at once to the College Hospital [vide section (c) above].

(e) In really serious cases the students will send notice to the College Hospital and it will be the duty of the Compounder to at once send for the Medical Officer, and when the Compounder is off duty, he is to arrange for a peon to be left at the College Hospital, who can either call the Compounder or the Medical Officer, as the case may be. The Medical Officer's address is the Roorkee Civil Hospital.

36 (iii) A student placed on the sick list will remain on the sick list till taken off by the Medical Officer. He will report daily at the Hospital at the specified hour while on the sick list, unless specially exempted by that Officer. Students on the sick list excused from work or attendance at College are not permitted to leave their quarters, except for medical purposes, without the written authority of the Medical Officer, initialed by the Principal. On the written application of the Medical Officer, the Personal Assistant to the Principal is authorized to erect a necessary tent near the quarters of any sick student.

36 (iv) Students who have been frequently sick during the year will lose marks for physical fitness.

36 (v). All Indian servants belonging to the College or to students, who require medical treatment, should attend at the Hospital during the authorized hours

36 (vi) No student may be treated privately. All cases of sickness must be reported and entered on the Sick report. Any student concealing a case of sickness will be severely punished.

36 (vii) The College Medical Officer will visit the hostels, cook houses, latrines and grounds once a week, as also the dormitories to see that the sanitary arrangements, etc. are properly carried out, and will send a report every Monday morning to the Principal concerning any defects he may observe, or any improvements that he may wish to suggest.

Examinations

37 (i) *The work given in by students at examinations, projects, or at any time during the course is accepted as their own honest and unaided work.* any attempt to deceive the Staff about it in any way whatever will on detection, be punished by immediate expulsion. No excuse whatever will be accepted.

37 (ii) Any student not present at any examination from whatever cause will lose all marks for the same.

37 (iii) Appraising the answers to an examination is a very tedious and difficult matter, and each slovenly set of answers wastes time and temper, and causes all to suffer. The following rules which are really in favour of good, honest and neat work will be strictly enforced, and marks deducted in each case in which they are infringed or not acted up to —

- (a) Carefully read and minutely adhere to the instructions printed on the cover of the answer books

issued to students These instructions are as follows —

- (i) Number your answers to correspond with the numbers of the questions, and if the question is divided into sub heads, be careful to number these
- (ii) No part of this book is to be torn off
- (iii) The whole of the work, including all rough work, is to be written in this book
- (iv) No writing whatever is allowed on any other paper, except squared paper when required for an answer Each sheet of squared paper must be headed as required under regulation (A) or (B) of the answer book
- (v) The paper should be ruled or folded, so as to make a margin on the left hand side
- (vi) The handwriting should be distinct
- (vii) Only one side of the paper is to be written upon The odd numbered pages, starting with page 1 are to be used for answers and the even numbered pages may be used for rough work, if required otherwise may be used for answering the questions
- (viii) In the event of this book becoming filled up another book must be used and the number used written below There is a tendency amongst students to waste their own and the examiner's time by writing unnecessarily lengthy answers, by needless repetition, and by using a large number of answer books It should seldom be necessary to use more than one answer book All answers should be as concise as possible, and, if sufficient thought

is exercised before the answer is committed to paper, all repetition can be avoided. Careless and lengthy answers will entail a loss of marks.

(ix) These books are not to be folded but forwarded flat and if more than one book is used by the same student the second and succeeding books must be *tagged with the first*.

(x) Students with roll numbers using this book are not to make any allusion to their names or initials, or to make any marks by which they may be identified.

(xi) The index on the inside of the cover of this book must be carefully filled in. Students must fill in against each question attempted the word 'answered'. In the case of questions having separate parts (a), (b), (c), each separate part attempted should be indexed as 'answered'. Nothing should be entered against questions which have not been attempted.

(b) In sessional and final examinations each student will be given a roll number to use instead of his name. This must be written in the right hand top corner of the cover of *each* book. The number of each question must be written in the margin of each page.

(c) The examiner will mark under three heads —

(i) Knowledge of the subject

(ii) Accuracy in working

(iii) Clearness of working and expression

If the student fails in (c) (iii), even though perfect in (c) (i) and (ii), he will lose marks. He is bound to show clearly

how he obtained his results, and the examiner has no time to waste marking slovenly work or roundabout methods.

Take a mathematical examination for example —

- (i) Each process should be headed with a word or two of explanation
- (ii) All work having to be done in the book, each step of calculation that cannot be done in the head must be done on the even numbered pages
- (iii) All work known to be useless must be scored out
- (iv) The answer must be plainly marked Write the word "answer" opposite the answer in each case, thus Ans — " "
- (d) Students must bring their own pens, inks, pencils and drawing instruments The use of slide rules may be permitted at the discretion of the examiner No borrowing from each other is allowed during an examination
- (e) No books or papers of any sort are to be brought into the examination room Logarithm tables graph and drawing paper, when necessary, will be provided
- (f) No student may leave his seat for any reason except to quit the room After having once left the room, for any reason whatever, he cannot return. A student wanting another book will call an attendant, who will bring it to him
- (g) When time is up the examiner will call out, "cease writing," after which order, pen must not be put to paper for any purpose whatever
- (h) The use of red ink or of coloured pencils should be avoided as far as possible, as the examiner usually makes corrections in coloured pencil

Project Regulations (Including Tours).

Notes for the guidance of students in drawing up Projects

35 (1) *The collaboration of students during Projects is forbidden and in this connexion attention is expressly drawn to Standing Order No. 37 (1), and to the penalty for its infringement. It must be remembered that Projects are competitive examinations subject to the ordinary examination rules. Students are warned that they are allowed to obtain assistance solely from (a) technical books in general, (b) plans and models in the Model Room and Library, and (c) plans of any existing engineering work, which they may obtain from a source which is equally open to other students of their year.**

It is forbidden to obtain survey maps or level charts from outside sources, or any assistance in designing or calculating from outside the College. Students are not permitted to obtain previous engineering projects executed by past students for the purpose of assisting them in their work. Finally, in the absence of specific project regulations, the best guide to a student's conduct is his own sense of honour.

38 (1) *A project is expected to be a piece of work such that a senior officer can examine, criticize, pass orders on it, and hand it over for execution. To ensure this result it must be complete in every sense. It must include a clear concise report with *cross references* to all drawings, a survey which can be checked with ease and celerity, and drawings from which work or working drawings can be produced and from which the estimate can be checked. The drawings must be neat but should have no unnecessary elaboration. Calculations should be given for all important structural items. A student must carefully think out his work. Having gone over the ground he should scheme out his survey. To ensure that*

* *Vide* Standing Order No. 29, such plans etc. should, in any cases, be shown to the Professor of Civil Engineering I

he has time to submit all necessary work, all work in the field must be done neatly and methodically.

38 (iii) Having completed the field work the student is required to complete his project in the College. Work on drawings in quarters is not permitted, but this does not prevent a student from thinking out his designs, and making sketches and calculations in his spare time. He must again map out a methodical scheme if he is to submit a complete project. Every drawing should be numbered, with a heading showing what it represents. A scale should be shown on each drawing and sufficient dimensions should be given both for the estimate and for actual work. Reference to conventional signs need only be shown on one sheet for the whole project.

38 (iv) Above all, the student should endeavour to show a sense of proportion as regards the relative importance of the various portions of his work. The whole of such details as galvanized or tiled roofs, railings, gateways, etc. should be drawn sufficiently to show the style proposed. All calculations for applied mechanics should be fastened together and full references given in the text to all drawings. All details necessary to check the calculations should be given. All calculations referring to a particular design should run concurrently, and be prefaced by a clear statement of the data connected with that design. No calculations should be shown on the drawings but magnitudes of the forces represented should be clearly shown. No marks will be allotted for applied mechanics drawings which are not accompanied by calculations in the report. The important details in drawing the finished survey, estimate, calculations and report should all be completed first. Cross references and headings should be carefully given so that it may be easy to follow from the report or estimate to what reference is being made. Any leisure

time can then, if desired, be devoted to type drawings of well-known details and to generally beautifying, cleaning and elaborating the drawings. The cleaning of drawings by servants or menials is forbidden.

38 (v) The senior student is responsible for the discipline of the camp. He will at once report any authenticated case of a breach of the camp regulations, and pending the arrival of instructions from the Officer in-charge of the class, he is empowered to issue such instructions to students or to khaldas as he may consider necessary.

38 (vi) Until a student has finally completed his field work in camp he is not permitted to visit Roorkee unless specially authorized to do so by the Officer in charge of the class. If a student, on account of absolutely imperative circumstances desires to visit Roorkee on leave from the project camp, he must submit a written application on a leave application form for leave at least 24 hours before he desires to quit the camp, and he is not authorized to proceed on leave until he has received the necessary permission. Such leave will only be granted in very exceptional cases and on receipt of conclusive evidence that it is absolutely necessary.

38 (vii) Students in camp are not compelled to work on Sundays or on general College holidays but they are allowed to do so. No extension of time in camp or in College will be given to such students as observe these holidays.

38 (viii) No work, however, is permitted in the College rooms on Sundays after the return from camp though such days may be utilized for work which is permitted in quarters.

38 (ix) All students while in camp are to keep a diary showing each day the hour of leaving camp and the hour of return, the nature and extent of the survey or other work executed, giving the names of any villages or other prominent points visited, and any other concise information useful

to an examiner in checking the progress of the work. *The diary must always be on the person of the student* so that it can be produced at once when demanded, and it must be kept up to date and must be written in ink

38 (x) Students should leave camp for work not later than 8.0 a.m. daily

38 (xi) Every endeavour should be made to avoid giving offence to villagers near the camp or elsewhere by needless destruction of crops or by other damage. Pea fowl must not be shot without permission of the local villagers

38 (xii) Every camping ground is to be kept clean. The second senior student will be responsible for the supervision of sanitation under the direction of the senior student. Paper, etc. must not be left lying about. Fires are not to be lighted inside the limits of the camp or near tents. Tins of oil are not to be kept in Government tents. Lamps must not be placed on tables where there is a danger of the tent catching fire. Before a storm all lamps must be extinguished

38 (xiii) Necessary tents should be located on the side of the camp away from the direction from which the prevailing wind blows, and should be, if possible, 100 yards or more from the camp

38 (xiv) The purity of the water supply for drinking and cooking should be carefully ensured. Drinking water should be boiled before use. The washing of clothes should not be permitted near a well from which the supply of drinking water is drawn, and in the case of stream the washing of clothes must take place down stream of the drinking water site

38 (xv) After return to the College all students have to work in the College on the preparation of the project during the hours ordered from time to time. Permission for exemption has to be obtained from the Officer in charge of the class

33 (xvi). Students will be responsible for their drawings and original survey records which are, on no account, to be taken to their quarters, but which must be kept filed in their classroom in the almshouses set aside for this purpose. The issuing officer will stamp all paper issued and on each sheet the student to whom it is issued must immediately enter his roll number.

33 (xvii). Government tents are classified as follows:—

E. P. tents to accommodate four students	Class I.
Semi Swiss Cottage, large, two students	Class II.
" " " small, one student	Class III.

Shuldaries, large, to accommodate not less than 15 *khalassies*

Shuldaries, small to accommodate not less than 8 *khalassies*

As the majority of the class consists of Indians, they will be accommodated in batches of 4 in each E. P. tent. If there are 3 Mohamedans they will occupy one E. P. tent but 2 Mohamedans will be accommodated in a Class II tent.

For example, if the class consists of —

Case I — 13 Hindus and 3 Mohamedans. Then the tents will be allotted as follows — 3 tents Class I, 1 tent Class II for the Hindus, and 1 tent Class I for the Mohamedans.

Case II — 14 Hindus and 2 Mohamedans. 3 tents Class I and 2 tents Class II.

In the case of Europeans tents of Classes II and III will be available according to the above scale.

There will be one E. P. tent, with drugget, for the Engineer Class Club, and one single pole tent, each with drugget for the European and Mohamedan messes, provided that each has three or more members.

Necessary tents are for Indians only.

Furniture—Each student will be allowed 1 bed 1 mattress, 1 folding chair and 1 folding table (the latter two being camp furniture) Club and Mess tents will have collapsible tables

38 (xviii) Two dak coolies for the camp, one of whom will report daily to the senior student, will be allowed, provided the camp is within a 15 mile limit, and three dak coolies for a 20 mile limit

38 (xix) An allowance of Re 1 per mile for the survey is sanctioned to each student for the cost of flags, pegs etc subject to a maximum of Rs 10 No other contingent charges are admissible, and this also includes such items as stationery, portfolios, etc

38 (xx) Students who are unable to finance themselves can, on applying in writing to the Principal, receive an advance up to Rs 50 for payment to khalassies This sum will be deducted from the total of the br'l on the close of the project The success with which students manage their coolies and make their camping arrangements will be considered in awarding marks for Fitness for Department

38 (xxi) Instruments as required will be issued to each student, each instrument bearing the class number of the student The student will be personally responsible for these instruments being in adjustment and in good working order Any damage sustained will be made good by the student, and he will not be permitted to exchange his instrument or stand with another student and no student will be permitted to lend out his instrument The damaged instrument with a report must be sent immediately to headquarters

Students will always accompany their khalassies proceeding to and returning from work In inclement weather instruments should be put away in their boxes and the boxes protected from rain, sun and dust When an instrument is kept

standing for some time in the sun, the cloth bag should be placed over it for protection. Level staves should be clamped together when not in use, and they should not be leant against walls and trees, but placed horizontally on the ground and protected from dew, rain and white ants.

38 (xxii) Except level staves, plane table stands and chains, no instrument should be carried on carts. The khalassies must be utilized for conveying such instruments to the field and back to headquarters. Plane tables may be placed face to face and taken in a spring cart, but this only when the student himself is travelling with them.

38 (xxiii) The boundaries of all fields must be surveyed provided they come within the specified limits of the alignment submerged area, etc. Village boundaries must also be defined, these are usually shown on the guide map or index map issued. Traverse work and triangulation must be based on true north, and the magnetic variation at the time should be clearly noted on each map and drawing. Every use should be made of embedded stones, plinths of building, etc. as bench marks in levelling, even if such objects are to some extent without the limits of the work.

38 (xxiv) Plane table sections, note books, etc. must have the roll number of the students clearly written on them. All plane table sections and records must be kept up to date in ink, and index and cross reference work should be made in the field. Level and traverse field books must be recorded in ink in the field.

38 (xxv) If a chain be used, the chain should be checked daily and the chain error noted in the field book. Levels should be tested for adjustment daily.

38 (xxvi) All calculations for curves, azimuths, etc. should be contained in the survey note book.

38 (xxvii) Students will see that as little damage as possible is inflicted on standing crops, and if chaining be necessary through such crops, the chain should be lifted, not *dragged*, from arrow to arrow. The instrument should be set up as near as possible to the line of demarcation between fields to avoid repeated trampling down of wheat, gram, etc.

38 (xxviii) Khalassies will be enlisted at Roorkee, and they will be entitled ordinarily to one day's leave per week, if the project be within 12 miles of Roorkee, or two days in a fortnight if beyond this limit. The day or days for leave is one for the student to arrange. Khalassies will receive pay at the prevailing rates for labour and tindals (one per squad of 4 men) will, if recommended, receive pay at the rate of Re 1 extra per mensem. Each khalassie can obtain a record sheet which will entitle him to prior claim for enlistment for both the triangulation and project camps. A tindal on a higher rate of pay loses claim to the extra allowance if he absents himself from any of the above camps. Khalassies will after engagement receive an advance of Rs 2 and will, after the advance has been paid, work in arrears of pay and obtain other advances against the final payment. A student engaged on independent work will, if circumstances allow, have a squad of 4 men. He will not be permitted to work with more.

38 (xxix) Civil Engineer and Overseer class students of the Thomason College of Civil Engineering, Roorkee, when proceeding on tours in connexion with project work or to visit works of interests, are entitled to travelling allowance at the following rates —

A—Civil Engineer class students—

- (i) Railway fare at single intermediate concessional rates applicable to students travelling in parties,

and when such rates are not available then a single intermediate class fare for each student

- (iv) Actual expenses for road journeys to the limit of mileage allowance admissible to officers of third class viz annas two per mile
- (v) Annas fourteen per night per student if detained in a town while on tour
- (vi) Single third class railway fare for rail journeys and one anna per mile for road journeys for each servant at the rate of one servant for every five students and subject to a limit of four servants for a party of over 15 students

B—Over sea class students—

- (i) Single fare of the third class for journeys by rail and one anna per mile for journeys by road
- (ii) Daily allowance at the rate of eight annas for halts outside headquarters

Students when not accompanied by a member of the College staff will be under the charge of the senior student

Workshop Rules

39 (i) Every student attending the Workshop course will be allotted a special number. On entering the shop he will be given a corresponding ticket. He will make the ticket over to the Foreman Instructor when taking his tools and receive it back when he has returned them correct at the close of the period. Upon completion of the period each student will check with and hand over to the Foreman all tools. When leaving the Workshops each student will give up his ticket at the gate.

39 (ii) Breakages and injuries to tools machines and Government property generally must in all cases be reported at once to the Lecturer in charge.

38 (xxvii) Students will see that as little damage as possible is inflicted on standing crops, and if chaining be necessary through such crops, the chain should be lifted, not *dragged*, from arrow to arrow. The instrument should be set up as near as possible to the line of demarcation between fields to avoid repeated trampling down of wheat, gram, etc.

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- (i) Single fare of the third class for journeys by rail and one anna per mile for journeys by road
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39 (ii) Breakages and injuries to tools, machines and Government property generally must in all cases, be reported at once to the Lecturer in charge.

39 (iii) Materials for instructional work will be issued to students by the Foreman with instructions regarding the work to be done. On completion of the work it must be shown to the Lecturer and approved before a more advanced exercise can be given.

39 (iv) Students are prohibited from working on any machine, unless especially authorized in this respect by the Lecturer in charge or the Foreman of the shop.

39 (v) Loose clothing and *puggies* may not be worn in the Workshops.

39 (vi) Students must not enter any shop other than that in which their class is working without permission from the Lecturer in charge.

Rules regarding student's independent work in the College Workshops

39 (vii) Every student wishing to do private work must first show to the Assistant Professor in charge a fully dimensioned sketch of the article he wishes to make. If sanctioned by the Assistant Professor, the job will be given a workshop number and material issued for it.

39 (viii) All articles being made, and the materials issued, must on no account be removed from the Workshop by students, but must be left in charge of the Shop Foreman; when any article is complete it must be handed over to the Assistant Professor and if satisfactory after examination by him it will be issued to the student who made it.

39 (ix) Private work must not be done during hours allotted to Workshop Practice.

Laboratory Rules

General

40 (i) The greatest care must be taken in handling and using all apparatus and any breakage or damage which occurs

must be reported at once to the Professor or Lecturer. Any damage or loss resulting from carelessness will be charged to the student or students responsible for it.

40 (ii) After finishing any experiment, the student or students must replace in their proper positions all parts of the apparatus and reagent bottles used. The whole apparatus is to be replaced in its case if there be one. When using boxes of reagent special attention is drawn to this rule.

40 (iii) When working the benches, etc., must be kept as clean as possible, students being careful to avoid any unnecessary dirt or mess.

40 (iv) Students must enter in a laboratory note book, especially kept for the purpose details of each experiment performed by them during or immediately after its completion. Such rough notes must be recopied kept up to date and be always ready for inspection when required. In the Physical and Electrical Laboratories after finishing an experiment students must mark it off on the form put up in the laboratory for the purpose.

40 (v) Students must do all experimental work entirely independently all necessary explanations etc. will be given by the Professor or Lecturer. Consultation between students is strictly forbidden during experimental work except when two or more students are ordered to conduct an experiment together.

40 (vi) All apparatus chemicals etc. are supplied free to students but any breakage or damage will be charged to the student or students responsible for it.

Chemical Laboratory Rules

40 (vii) Each student must provide himself with a rough note book, a piece of platinum wire a duster padlock and key

and a copy of each of the prescribed text books. Keys of the padlocks should be labelled and left with the Lecturer.

40 (viii) Students should be careful not to waste chemicals, either by spilling them about, or by using unnecessarily large quantities.

40 (ix) All experiments giving rise to poisonous or obnoxious fumes must be performed in the fume chambers.

40 (x) Students are advised, when heating either solids or liquids in test tubes to direct the mouths of the tubes towards the reagent shelves in order to prevent any accident occurring to their neighbours.

40 (xi) Students are on no account to touch the switches regulating the ventilation of the fume chambers.

Laboratory Balance Room Rules

40 (xii) Students when weighing should always place the article to be weighed on the scale pan on the *left* hand side of the balance and the weights on the *right* hand side.

40 (xiii) Chemicals are on no account to be placed directly upon the scale pans. Chemicals to be weighed should be either put upon a watch glass or placed in a weighing bottle. Everything to be weighed should be *scrupulously clean and perfectly dry*.

40 (xiv) When weighing the balance pans should be *slowly and carefully* released. The weights are *never* to be placed upon the scale pan while the balance pans are free to swing.

40 (xv) The weights are *on no account* to be touched with the fingers but should be removed by means of the callipers furnished with each box of weights.

40 (xvi) During the process of weighing the weights are to be removed one by one from the weight box and *carefully* placed upon the balance pan. Weights must not be placed upon the top of each other.

40 (xvii). Check the result of each weighing by adding together the weights removed from the weight box; then carefully remove weights from the balance pan

40 (xviii) All results must be carefully recorded in a note-book and not on scraps of paper which are liable to be lost.

40 (xix) Students when they have finished weighing, should remove the rider from the beam of the balance, see that the balance pans are not free to swing, close the balance, replace the balance cover, and see that all the weights are correctly placed in the weight-box

40 (xx) Hot crucibles are on no account to be put upon the balance pans. Crucibles should be allowed to cool in a desiccator

40 (xxi) Apparatus should *not* be left upon the balance tables

40 (xxii) Should any of the balances be defective, the matter should be reported *at once* to the Professor or Lecturer.

Engineering Laboratory Rules

40 (xxiii) The accuracy of the machines and instruments, depending chiefly upon their correct adjustment, students are forbidden to tamper with them in any way

40 (xxiv) Steam valves must never be opened except in the presence of a member of the staff. Serious accidents have happened in the past through non observance of this rule

40 (xxv) Reports of tests will be submitted on the day following that on which the tests were made. The report, with any corrections, will be returned to the student, after checking, on the student's next attendance at the laboratory.

Survey Laboratory Rules

40 (xxvi). The greatest care must be taken in handling and using all survey instruments. Any breakage or damage which occurs must be reported at once to the Assistant Profes

sor or Lecturer A student is personally responsible for any instrument issued to him, and when kept by him in his quarters he should see that it is put in a safe place and not where it is likely to be knocked over by his servant in cleaning the room. No instrument should be left unattended in the field. In going to or returning from work in the field *students (except Civil Engineer Class, 3rd Year) must, on no account, hand their instruments over to servants to carry*. Any damage done to an instrument must be made good by the student to whom the instrument was issued, and in the case where students are working in parties, the cost will be divided among the members of the party, unless it can be shown clearly that one or other of the party was directly responsible for the damage done. In addition to having to pay for the damage caused, the student or students will have marks deducted either from their "Fitness for department" or "Survey" groups or from both.

College office

41 (i) Students are strictly prohibited from entering the College office rooms. Any work which they may have with the office should be transacted over the counters.

41 (ii) A bill for all College dues will be sent to all the students before the time fixed for payment of such dues every month.

41 (iii) All payments must be made by students in person at the counter of the College treasury, between the hours of 11 a.m. to 3 p.m. on the days as may be ordered.

Cheques will not be accepted.

The College cashier will grant a receipt for the amount paid.

As far as possible the students must bring the exact amount due, to avoid any delay in transaction at the counter.

Central Library Rules*General*

42 (i) The Library is maintained for the use of the Staff and students of the College. It is also available to Gazetted Government officers resident in Roorkee and, under restrictions, to the general public resident in Roorkee. Books are issued for reference purposes and on loan in accordance with these rules.

42 (ii) Certain works of reference can only be consulted in the Library and Reading rooms and may not be removed from these rooms without the sanction of the Principal.

42 (iii) No book will be issued on loan from the Library until a signed receipt for the same has been handed to the Librarian; this receipt will be returned when the book is given back.

42 (iv) Books are liable to be recalled at any time by the Librarian. A new book may only be kept for 7 days. The term 'new book' is one which has been received within six months of the date of issue.

42 (v) The transfer of books on loan to any other person is prohibited.

42 (vi) Persons making use of the Library are forbidden to remove books from the shelves. The Librarian on being informed of its catalogue number will supply any book required.

42 (vii) The Library will be closed annually to the issue of books from approximately July 5 to 15. All books out on loan must be returned not later than July 5.

42 (viii) Persons damaging or losing books will be charged with the full value of the same. The practice of marking or scribbling in books is strictly prohibited.

42 (ix) Persons infringing any Library rules are liable to be denied the use of the Library

42 (x) The Library is open daily during the College session, Sundays and holidays excepted, for the issue and return of books from 11 a m to 3 p m During the vacation it is open on Thursdays only from 9 a m to 11 a m The Reading-rooms are open daily during the College session from 8 a m to 4 p m , except on Sundays and holidays

SPECIAL

College Educational Staff

42 (xi) A special issue of books for departmental use for periods not longer than one session is allowable to Professors and Heads of College departments provided the number so issued to any one department does not exceed twenty at any one time Such a special issue will require the sanction of the Principal Normally, in order that students should be able to consult any technical book, such books, if taken out by any member of the Staff, should be returned *within one month*, except as in Rule 42 (iv) If the Professor is of opinion, when he takes out the book, that he will require the use of it for longer than one month, he should put up an indent for a duplicate copy for the Central Library (chargeable to his laboratory grant) within one week of the issue of the book

42 (xii) All members of the Educational Staff are *entitled to keep books on loan to a limit of eight volumes*

42 (xiii) Applications for works already on loan will be registered by the Librarian, and on return will be issued to the applicants in order of priority

42 (xiv) The members of the Educational Staff are exempted from Rule 42 (vi) and are permitted to remove books from the shelves, but not from the Library without signing the usual form and depositing same with the Librarian.

Students

42 (xv) Text books on sale at the Book Depot will not be issued to students

42 (xvi) Students are not permitted to retain any book for a period longer than 14 days except as in Rule 42 (iv) and 42 (xv) Re issues of any book after it has been returned will not be made to the same borrower until after the lapse of 7 days Students are entitled to keep books on loan up to the limits for the different classes given below, but no book may be retained for a period longer than 14 days

Engineer class	5 vols
Overseer class and Draftsman class	3 vols

42 (xvii) Rule 42 (xiii) is also applicable to students for scientific works

42 (xviii) For the vacation books may be issued to students, up to a limit of 3 only, with the sanction of the Principal

42 (xix) Students borrowing books containing plates must personally check the number of plates and enter the actual number on the receipt The plates are to be checked again when the book is returned Books returned one day will not be re issued till 3 clear days have elapsed, except as in Rule 42 (xx) In order to obtain and return books students must attend in person

42 (xx) Students of all classes working on projects may only borrow 3 volumes at a time and are allowed to keep the

same for 3 clear days only Books returned one day may not be issued before the following day to these students

Residents

42 (xxi) Members of the general public resident in Roorkee may, with the approval of the Principal, borrow books The applications of non-commissioned officers and soldiers stationed in Roorkee should be submitted to the Principal through their Commanding Officer

42 (xxii) All residents of Roorkee entitled to use the Library under any of these rules may keep books on loan up to a limit of *six volumes*, no book being retained for a longer period than one month, except as in Rule 42 (iv)

42 (xxiii) Residents about to leave the station, even for a short period, must return all Library books

42 (xxiv) The term 'Members of the general public resident in Roorkee' means a head of a family, and the term includes his family but not as separate residents

Non residents

42 (xxv) The Library, excluding works of fiction, is available to gazetted Government officers and other out station residents, in special cases, on application to the Principal, at whose discretion a deposit may be required to cover the full value of the books borrowed

42 (xxvi) Those permitted to use the Library under Rule 42 (xxv) may keep books on loan up to a limit of *six volumes* no book being retained for a longer period than two months The cost of packing and carriage by registered post both ways being defrayed by the borrower No "new book" will be issued

Thomasonian Society.

43 (i) The aim is to cultivate the faculty of exact expression in speech and to provide for rational discussion of scientific, technical, engineering, literary and social subjects

Also to arrange lectures on subjects of general interest by members of the College Staff or outsiders

43 (ii) There shall be no admission fee or subscription of any kind

All members of the Staff and students of the Civil Engineer class shall be members *ipso facto*

43 (iii) The Principal will nominate every session a member of the Staff to be the President, who in consultation with the Principal shall have full control over the activities of the Society

43 (iv) The students will elect a Secretary at a general meeting to be held after the mid sessional examination every year. He will keep a record of the activities of the Society and issue notices with the approval of the President, for the various meetings

43 (v) A Vice President will be elected from among the 2nd year students, at a general meeting to be held after the mid sessional examination every year. He will assist the President and, in his absence preside at meetings

43 (vi) The Secretary will arrange meetings with the approval of the President. At least fourteen days' notice should be given of each meeting

43 (vii) The debates shall be held in the premises of the Civil Engineer Class Students' Club

43 (viii) The Lacey Prize of Rs 25 will be awarded annually to the student who is judged to have submitted the best

paper and or has most clearly expressed himself in discussions. The standard set will be high, and the prize will not be awarded unless work of real merit has been presented to the Society. The judges will be the Principal and the President of the Thomasonian Society.

Rules for the management of the College Magazine.

44 (i) The magazine will be called "The Lion, Thomason College Magazine". It will be under the control of a senior member of the Staff who will be called the "Director", and who will be appointed by the Principal every session.

44 (ii) The Director will supervise its publication and control its finances.

44 (iii) An Editor and an Assistant Editor will be appointed annually before the College vacation by the Director in consultation with the Principal. The Editor may be either of the 2nd or 3rd year Civil Engineer Class, and the Assistant Editor will be an Overseer Class student of the 1st or 2nd year.

44 (iv) The new Editor and Assistant Editor will take up their duties with the second issue of the session following their appointment. The names of the new Editor and Assistant Editor will be announced in the first issue of the session following their appointment.

44 (v) There will be as many issues during the session as possible (up to a maximum of 5), depending on articles submitted and if funds permit.

44 (vi) A compulsory subscription of annas four per mensem for each of the 9 months of each session from each Civil Engineer class student, each Indian Commissioned officer and each Over-seer class student

The above subscription will entitle each person named to one copy of each issue of the magazine. Should any wish to purchase extra copies they may do so if there are sufficient copies at Re 1 2 per copy

44 (vii) The magazine will be kept on record in bound volume in the College Library and in the Students Clubs

44 (viii) From time to time copies of the magazine may be sent to distinguished old alumni of the College and to certain institutions for purposes of exchange. A list of these will be sent to the College Office at the beginning of each session. The College Office will distribute the magazine to the subscribers

44 (ix) Writers of articles will be entitled to receive one extra copy free of charge. More copies will be supplied to them on payment of actual cost

College dairy

45 All students are to obtain milk and butter from the College Dairy and from no other source. This Dairy is maintained for the good of their health and students are earnestly requested to see that their servants do not supply milk or butter from outside sources and by this means endanger the health and even risk the lives of students. Any servant detected supplying milk or butter to students *from outside sources will be expelled from the College Estate*, and students will be held responsible that their servants are informed of this fact. Butter and milk will be paid for through the Dairy bills

Subscriptions to athletics and games.

46 Students of the Civil Engineer and Overseer classes have to pay the following donations and subscriptions —

(a) Civil Engineer Class

Compulsory Entrance fees

Civil Engineer Class Recreation, Sports and Regatta fund Rs 15 upon first joining from each student

Subscriptions

Civil Engineer Class Recreation, Sports and Regatta fund Rs 7 per mensem for each of the 9 months of each session from each Civil Engineer Class student

(b) Overseer Class

Compulsory Entrance fees

Club and Recreation Fund Rs 3 upon first joining the College

Subscriptions

Club, Recreation and Boating Fund Rs 5 per mensem from each Overseer class student for each of the 9 months of each session of which Rs 3 will be credited to the Club and Recreation Fund and Rs 2 to the Boating Fund

Rules of Civil Engineer Class Students' Club

47 (i) No person other than students of the Civil Engineer class shall be eligible for ordinary membership. Each Civil Engineer class student is compelled to join, and will have to abide by the rules and regulations in force at the time, or as may be altered thereafter. A member guilty of a breach of the rules or of conduct unbecoming a member of the Club may be debarred from enjoyment of the Club privileges to the extent approved by the Principal on the recommendations of the President and the Executive Committee.

All qualified ex-students may be invited to become honorary members of the Club, with the consent of the Principal

47 (ii) At the beginning of each session the Principal will nominate either himself or a member of the Senior Staff as President of the Club and another member of the Staff as Vice President

All affairs of the Club will be managed by an Executive Committee, the Chairman of which will be nominated by the Principal from among the 3rd year students and eight honorary secretaries elected at a general meeting of the Club in the manner indicated below —

(a) General Secretary	} Elected from 2nd* year class members	} Elected at the close of the previous College session
(b) News Secretary		
(c) Furniture Secretary		
(d) Garden Secretary		
(e) Billiards and Lighting Secretary	} Elected from 2nd or 3rd* year class members	} Elected as soon as possible after commencement of the College session
(f) Music Secretary		
(g) Indoor Games Secretary	} Elected from 1st year class members	
(h) Freshment Secretary		
	} Elected from any of the three classes	

A general meeting shall be called before the close of a College session to elect secretaries (a) (b) (c) (d) (e) and (f) for the ensuing College session. The new secretaries will take over charge of their respective duties from the retiring secretaries together with the account books and all connected papers before the College vacation commences and report their laying done so to the Vice President

Before the College vacation commences the retiring secretaries (g) and (h) shall hand over charge to the general

*Denotes those members who will become 2nd and 3rd year member during the immediately ensuing College session

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(c) Furniture Secretary		
(d) Garden Secretary		
(e) Billiards and Light ing Secretary	Elected from 2nd or 3rd* year class members	Elected as soon as possible after commencement of the College session
(f) Music Secretary		
(g) Indoor Games Secretary	Elected from 1st year class members	
(h) Refreshment Secretary	Elected from any of the three classes	

A general meeting shall be called before the close of a College session to elect secretaries (a), (b), (c), (d) (e) and (f) for the ensuing College session. The new secretaries will take over charge of their respective duties from the retiring secretaries together with the account books and all connected papers before the College vacation commences and report their having done so to the Vice-President.

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Compulsory Entrance fees

Club and Recreation Fund Rs 3 upon first joining the College

Subscriptions

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All qualified ex students may be invited to become honorary members of the Club with the consent of the Principal

47 (ii) At the beginning of each session the Principal will nominate either himself or a member of the Senior Staff as President of the Club and another member of the Staff as Vice President

All affairs of the Club will be managed by an Executive Committee, the Chairman of which will be nominated by the Principal from among the 3rd year students and eight honorary secretaries elected at a general meeting of the Club in the manner indicated below —

(a) General Secretary	} Elected from 2nd & 3rd year class members	} Elected at the close of the previous College session
(b) News Secretary		
(c) Furniture Secretary		
(d) Gardens Secretary		
(e) Billiards and Lighting Secretary	} Elected from 3rd year class members	} Elected as soon as possible after commencement of the College session
(f) Music Secretary		
(g) Indoor Games Secretary	} Elected from 1st year class members	} Elected as soon as possible after commencement of the College session
(h) Freshment Secretary		
	} Elected from any of the three classes	

A general meeting shall be called before the close of a College session to elect secretaries (a) (b) (c) (d) (e) and (f) for the ensuing College session. The new secretaries will take over charge of their respective duties from the retiring secretaries together with the account books and all connected papers before the College vacation commences and report their laying done so to the Vice President

Before the College vacation commences the retiring secretaries (g) and (h) shall hand over charge to the general

* Denotes those members who will become 2nd and 3rd year members during the immediately ensuing College session

secretary for the ensuing College session appointed at this General Meeting together with all account books and all connected papers and report their having done so to the Vice President

A general meeting shall be called as soon as possible after the commencement of a College session to elect secretaries (g) and (h) and to these newly elected secretaries (g) and (h) the General Secretary will hand over all the account books and connected papers which have been in his custody during the College vacation without delay and report his having done so to the Vice President

47 (iii) The Club reserves the right to enforce an office on a member of the 2nd year class at an election for this purpose whenever an emergency arises for so doing

47 (iv) During the temporary absence of any secretary from Roorkee he will arrange for his work to be carried out by some other member proposed by him and approved by the President

47 (v) At the general meeting held before the close of a College session at which certain new secretaries for the ensuing session are elected a Finance Committee shall be formed for preparing the annual budget. The Committee will include —

(a) A chairman (elected from 3rd year class)

(b) Four members other than secretaries and elected from each class

(c) The General Secretary who will also act as Secretary of the Finance Committee

The Finance Committee will call upon the various new secretaries to submit their estimates of expenditure. After examining these the Committee will frame the budget and will submit it to the Executive Committee for approval. After approval has been given by the Committee the budget will be passed at the Annual General Meeting of the Club

47 (vi) Should circumstances warrant it, the Executive Committee may make subsequent minor changes in the budget to guard against over expenditure

47 (vii) One General Meeting which shall be called by the President as early as possible after the election of certain secretaries and before the close of the session shall be termed the annual general meeting. Ordinary general meetings of the Club can be called by the Executive Committee after two days' notice

A general meeting can also be called by one-third of the members of the Club after four days' notice in writing to the General Secretary. The agenda for all general meetings must be posted at least forty-eight hours prior to the meeting

Questions regarding the management and expenditure of the Club can be asked by any member if twenty four hours' notice is given to the General Secretary about them, previous to a General Meeting, subject to the approval of the President

A vote of no confidence can only be passed on any secretary if two thirds of the members of the Club desire to do so

At the Annual General Meeting and all general meetings either the President, Vice President or Chairman of the Executive Committee will preside. Strict order will be maintained by members present at the annual general meeting and ordinary general meetings. Lack of discipline on the part of any member or members at any general meeting at which the President is not presiding shall be reported by the officer presiding to the President for necessary action

The minutes of all general meetings (both annual and ordinary) shall be recorded by the General Secretary as soon

as possible after the meetings and the same sent to the President for perusal

47 (viii) The quorum for either an annual, general or ordinary meeting shall consist of one third the number of active members of the Club, excepting when constitutional changes are to be discussed, when a quorum of at least two thirds of the number will be required

47 (ix) The following subscriptions shall be paid in advance by each member of the Club and will be deposited in the College Treasury —

(a) A compulsory subscription of Rs 3 per mensem for each of the 9 months of each session from each Civil Engineer class student

(b) A compulsory entrance fee of Rs 10 from each Civil Engineer class student

(c) Honorary members if resident in Roorkee, shall be required to pay a subscription of Rs 2 per mensem

47 (x) The Club premises shall only be used for entertainments or meetings of a general nature and only with the Principal's sanction

47 (xi) The Executive Committee may, provided a resolution has been passed at a General Meeting, collect extra subscriptions to meet any proposed expenditure which must be for a general purpose not provided for in the ordinary yearly accounts. This may be collected through the College office and all members will have to pay the subscription. In special cases the President can allow a single member not to take part in a function and not pay, but in cases where more than one member dissents the case must be referred to the Principal whose decision shall be binding on the dissenting members

47 (xi) The cash from the regular subscriptions and billiards earnings shall be kept in the College Treasury. The amount accumulated from billiards will be earmarked for repairs and upkeep of the table and not used for any other purpose without the express sanction of the Principal. If money other than revenue is required for billiard table repairs arrangements must be made in the following budgets to repay such money from revenue.

The General Secretary will maintain an up to-date record of the total receipts and expenditure of the Club during his year of office.

Expenditure from capital must in all cases be regarded as a loan and budget provision made for repayment from revenue. This repayment need not necessarily be made in one year. All expenditure from capital must have the sanction of the Principal.

At the beginning of each month the secretaries of the various sections will hand their accounts together with vouchers and bills to the General Secretary who will submit bills to the President after ascertaining that they are within the budget allotment. The President may either sign the pay order or delegate the power to the Vice President and the General Secretary will draw the funds required from the treasury and distribute to the section secretaries concerned. V P P charges will be dealt with in a similar manner but must be paid as they arise.

47 (xii) The General Secretary shall be allowed an imprest of Rs 10 for petty expenses of the Club. Such imprest will be repaid as often as is necessary.

47 (xiv) The General Secretary with the assistance of the section secretaries will prepare a detailed account of all expenditure and receipts each month. These accounts will be

audited by the Finance Committee each quarter. The audit report will then be considered by the Executive Committee, and the audited accounts for the whole year placed before the Annual General Meeting of the Club.

The various secretaries shall also submit a detailed report of their work at this General Meeting.

47 (xv) The Club premises will usually be open from 10 a.m. to 9 p.m. in the first half session and from 10 a.m. to 10 p.m. in the second half session, but on Sundays and holidays the Club shall open from 8 a.m. and 7 a.m. respectively. On special occasions the Club premises may be kept open after the aforesaid hours provided the Executive Committee has previously obtained the sanction of the Principal through the President, unless he is the Principal, otherwise through the Vice President. The Club premises will be closed during the College vacation and no member or honorary member shall have the right to use them during that period.

47 (xvi) Members are expected to use the Club property with great care and not to remove from the Club premises anything which is not their private property.

Any damage to Club property must be reported promptly to the Vice President by the General Secretary. The member concerned shall pay for the damage such amount as is assessed by the Personal Assistant to the Principal upon intimation from the President or Vice President after the approval of the Principal has been obtained.

An up-to-date inventory of all the Club property shall be kept with the General Secretary, and the departmental secretaries shall also keep a list of the property in their charge. Copies of these lists will be put up on the notice board for

week in the beginning of the session. The proposals for new purchase together with an estimate of the cost of same are to be submitted to the President through the Vice President for his signature before any purchase is made. A list of all such proposed new purchases is to be exhibited on the notice board from time to time.

The secretaries should realize that they are servants of the Club and are not entitled to privileges other than those enjoyed by all the members of the Club. In no circumstances must they use any Club property for their own private use. Neither must Club servants be called upon to perform duties other than those connected with the Club. Any such instances brought to the notice of the President will be dealt with by him in consultation with the Executive Committee. In every case the action taken shall be reported to the Officer in charge, Civil Engineer class.

47 (xvii) A member may bring with him to the Club premises occasionally one or two gentlemen as his guests. He will be responsible for his guests while they are in the Club premises.

No guests will be allowed to be present at the General or Business meetings of the Club.

On the occasion of any Club function invitations shall be issued only by the General Secretary, after the list of invitations has been approved by the President. Members desiring to invite any friends will send the names and addresses of these friends beforehand to the General Secretary who will submit all names to the President for approval.

47 (xviii) The Club establishment will be regulated and controlled by the General Secretary under the order of the Executive Committee.

The Club premises will be properly looked after and kept clean and tidy under the supervision of the Garden and the General Secretaries. Anything in the nature of repairs being required will be reported to the Personal Assistant to the Principal.

The Personal Assistant to the Principal will report to the President any defect in cleanliness for necessary action.

47 (xix) Instances of neglect or indiscipline on the part of any servant of the Club shall be brought at once to the notice of the General Secretary, who may recommend him to the President for such disciplinary measures as may be necessary.

47 (xx) During the absence of members on duty in camp one or more of the Club servants as may be decided by the Executive Committee may accompany them to be in charge of the refreshments and indoor games at the camp. If considered necessary by the Executive Committee temporary establishment may be engaged for the period of the camp, provided the budget allotment will cover the extra charge.

47 (xxi) The billiard table can be used by members on the payment of the following charges: Anna 2 per member for singles and anna 1 pies 6 per member for doubles per game lasting 25 minutes or part thereof, to be charged against those taking part in a game. These charges will be realized through the College office each month.

Any damage to the billiard table cloth shall be paid for at the minimum rate of Rs 5 per inch. For the first cut the charge will be more, the amount of which will be fixed by the President.

Members are expected to abide by any other instructions regarding billiards issued by the Billiards Secretary, and approved by the President.

47 (xxii) Several indoor games can be played at present at the Club. Gambling is definitely prohibited in the Club premises.

47 (xxiii) Badminton and tennis are the only outdoor games provided by the Club at present and for these no extra charge is made.

47 (xxiv) Members will vote for the newspapers and periodicals, which they desire for the Club on a list circulated by the News Secretary at the close of the College session. The proposed list shall then be submitted to the Executive Committee and forwarded by the Chairman of the Executive Committee to the President for approval. The order for foreign periodicals will be placed before the annual meeting.

At the beginning of the College session all papers selected by the Executive Committee will be auctioned to the members of the Club and the proceeds credited to the Club funds. The purchaser of any paper or periodical will receive the old copy of the same as soon as the new one arrives.

47 (xxv) The constitution can be modified only once a year and only then provided 75 per cent of the quorum laid down in rule 47 (viii) vote in favour of the proposed changes. Before any such change can be discussed it shall be necessary for the General Secretary to give one month's notice to all members. For this it is also necessary to obtain the sanction of the Principal.

All correspondence including newspapers and periodicals meant for the Club shall be delivered to the General Secretary, who will dispose of them in the manner required by the rules.

47 (xxvi) All members when attending the Club are requested to refrain from appearing in negligé dress and are to be neatly and properly attired.

Rules of the Civil Engineer Class Mess

Name and
membership

48 (i) The mess shall be called the Civil Engineer Class Mess and all Civil Engineer Class students shall be eligible to join it.

Any student, who wishes to join, must inform the Principal in writing through the O C C E and once he has joined he will not be allowed to resign during the session current except for reasons noted in paragraph 21. Any student, who wishes to resign for the ensuing session, must inform the Principal in writing through the O C C E before he leaves the College for the long vacation.

Committee.

48 (ii) The management of the mess shall be entrusted to a committee composed of —

(i) a President who will be a member of the Staff appointed by the Principal,

(ii) four students, two of whom are to be elected from the 2nd year, one from the 1st year and one from the 3rd year and two other students whom the President has the power to select

N B — Each class of member is to be represented on the committee, i.e. vegetarian and non vegetarian

In addition to this the President may form sub-committees from among the students for the running of the mess

The Personal Assistant to Principal will function as President should the President be away at any time

The senior student of the two members elected from the 2nd year shall be the Honorary Secretary and the junior student the Assistant Secretary. The Mess Secretary is to occupy the Secretary's quarters attached to the mess building. It is compulsory for the students elected to serve.

The Mess Committee shall meet as often as the President may call.

48 (iii) Between the date the College reopens after the long vacation and October 31 of each year the President will call an annual general meeting of all members of the mess to elect the committee for the session and to consider any suggestions for improvements or alterations for the general welfare of the mess. Any such suggestions in writing, must be lodged with the Honorary Secretary at least 3 clear days before the date of the annual general meeting. Annual General and other meetings

No other general meeting is to be called except with the previous sanction of the President.

The Principal has the right to except or vote all proposals etc. passed at the annual general or any other general meeting or committee meeting.

All communications concerning the mess which are addressed to the Principal are to be sent to him through the President.

48 (iv) The rates of subscriptions shall be as follows — Subscriptions

(i) An entrance fee of Rs 2 per student upon first joining

(ii) A monthly subscription of Re 1.8 per student per session

(iii) The members of the mess will be required to pay Rs 20 as an advance money to effect cash p

charges of food stuff for the mess The advance will be adjusted at the end of the College Course or at any other time, if a member resigns

The monthly messing charges will be worked out every month based on the actual expenditure incurred, and will thus vary every month The approximate monthly amount will however, be Rs 22 for the vegetarians and Rs 30 for the Non-vegetarians

NOTE—All entrance fees, monthly subscriptions and messing charges will be collected as " College Dues "

Absence of members 48 (v) All members of the mess will be liable for their monthly subscription whether absent from the mess or not

Members of the mess will be allowed a rebate from their monthly messing charges for —

(i) Whole days away on tour,

(ii) One whole day or more when away on sanctioned leave, i.e. leave sanctioned as per College Standing Orders

But for those days for which this rebate is allowed a charge of annas four per day will be made for table money

The rebate to be allowed will be as follows —

	Rs	a	p
(i) Vegetarians	0	11	0 per day
(ii) Non vegetarians	1	0	0 .. .

A book will be maintained in the mess and all members who wish to avail themselves of the concession of rebate on messing charges for any absence as noted above must sign this book 24 hours before they leave the College Should they fail to do so for any reasons, whatsoever, full messing charges will

have to be paid. There will be no excuses accepted for an infringement of this rule. In the case of a whole class being away on tour or the whole three classes then the senior student in either case, who is a member of the mess will be responsible for signing the book for all.

A B—Afternoon tea as a compulsory item, will be supplied. Arrangements will, however, be made for those, who wish to stick to this item, for which extra charges will be levied on them.

No rebate for a single meal will be allowed unless a member drops down a particular meal for more than 7 consecutive days from the date he informs the Honorary Secretary of his intention to do so. The rebate then will be worked as follows —

		Vegetarians		Non vegetarians	
		Rs a p		Rs a p	
Dinner	0 5 0		0 6 6
Breakfast	0 2 6		0 1 0
Lunch	0 3 6		0 5 6

It will, however, not affect the payment of table money.

No member will be allowed to change from vegetarian or non-vegetarian menu or *vice versa* during the middle of a month. He can do so in the beginning of a month by informing the Mess Secretary.

For meals on days of departure and return members will pay in addition to the table money charges, for each meal of which they partake at the following rates —

(1) Vegetarians—		Rs. a p.	
(a) Breakfast	0 2 6
(b) Lunch	0 3 6
(c) Dinner	0 5 6

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	Rs a p	Rs a p
Dinner	0 5 0	0 6 6
Breakfast	0 2 6	0 4 0
Lunch	0 3 6	0 5 6

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(1) Vegetarians—	Rs a p
(a) Breakfast	0 2 6
(b) Lunch	0 3 6
(c) Dinner	0 5 6

Rs a p.

(ii) Non-vegetarians—

(a) Breakfast ..	.	..	..	0	4	0
(b) Lunch ..	..	..	.	0	5	6
(c) Dinner			..	0	6	6

Should a member be ill and confined to his quarters by the College Medical Officer, he may partake of his meals in his quarters but his own servants will bring the food from the mess. On no account will mess appointments, etc. be allowed to be taken to a member's room in cases other than for illness

Members are expected to be punctual at all meals. No responsibility can be assumed for the provision of meals out of regular hours except as provided for in clause 18

Guests

48 (vi) No member may invite any guests to any meal without first entering in the guest book (which will be maintained in the mess for the purpose), notice of his intention at least 2 hours before the time of the meal starts. Cancellation under 2 hours notice will not be accepted

The rates for single meals for guests will be as under —

Rs a p

(i) Vegetarians—

(a) Breakfast ..	..	.	..	0	3	6
(b) Lunch .	..	.	..	0	5	0
(c) Tea ..	..	..	..	0	3	0
(d) Dinner ..	.	..	..	0	6	6

(ii) Non-vegetarians—

(a) Breakfast ..	..	..	..	0	5	0
(b) Lunch ..	..	..	..	0	7	0
(c) Tea ..	..	..	..	0	3	0
(d) Dinner ..	.	..	..	0	8	0

The rates for the whole day messing for guests will be as under

	R s p
(i) Vegetarian	.. 0 15 0
(ii) Non-Vegetarian	1 2 0

45 (vii) No invitations in the name of the mess shall be given to any individual or party without the consent of the President and if consent be given, all members will bear a proportion of the cost, whether absent or not

General
invitations.

46 (viii) All property, furniture, appointments, etc in the mess is as far as the mess is concerned the property of the Thomason College of Civil Engineering and no individual member has any share in it whatsoever

Mess
property.

All damage done by members whether accidentally or not will be paid for by the members causing such damage and such members will sign a chit for any such damage, voluntarily

The right to lend any of the mess property, servants, etc for any College functions, teas, etc is vested solely in the President. The mess property and appointments are not in any case to be lent to any private individual or individuals whether belonging to the College or not.

47 (ix) It is the duty of the Secretary in conjunction with the President to prepare the menu for the ensuing week and to see that the food supplied cooked or uncooked is of the best quality. The Secretary will bring complaints to the notice of the President. The mess servants are under the direct control of the President.

Secretary's
duties

48 (x) The Mess Secretary will arrange messing in camp for those members of the mess who have to go to the 2nd year survey camp or to 3rd year minor or major project camps

Camp
messing.

Hours of
messing 48 (xi) The hours of messing will be as follows
annually —

(i) Breakfast	7 00 hours to 8 30 hours
(ii) Lunch	11 00 „ to 13 00
(iii) Tea	To be fixed periodically by the President
(iv) Dinner	19 30 hours

or as may be fixed from time to time

Mess
servants 48 (xii) The mess President in consultation with Mess
Secretary will employ all table servants and other servants
for the mess Member's private servants are not to be
allowed in the building or its precincts and kitchens

Complaint
book 48 (xiii) A complaint book will be maintained in the
mess and those members who have any complaints to make
will enter same in it It will be the duty of the Secretary
to bring to the President's notice all complaints entered No
complaint if unsigned or frivolous will receive attention

Mess
discipline 48 (xiv) The senior student in mess will be held
responsible for discipline in the absence of any member of
the staff

Drinks 48 (xv) No alcoholic drinks will be sold in the mess nor
are they to be carried in to the mess for consumption by any
member but mineral waters will be sold but only on cash
payment, similarly smokes

Opening and
closing
hours 48 (xvi) During the first half session the mess will
open at 7 00 hours and close at 20 50 hours During the
second half session the hours will be from 6 00 hours to 21 45
hours

Odd meals 48 (xvii) No meals will be obtainable by any members
of the mess except at the hours named in paragraph 11
Should any member want any meal at any odd time he can
only obtain same provided it is available at the time

48 (xviii) No member of the mess other than those named below is allowed to enter the kitchens or pantries or stores. The Secretary and members of the committee are to inspect the kitchens, pantries and stores as often as they deem necessary. Further duties of Secretary and members of committee

49 (xix) The members' donations, fees and monthly subscriptions are for the replacement of mess furniture and appointments and the control of such funds will be in the hands of the Principal or as he may decide to depute to the President. Use of donations, etc

50 (xx) Upon the first opening of the mess a complete inventory of all mess property, appointments, etc. will be handed over to the President and it will be duty of the President to see that this inventory is checked as he may decide at least once a month. Any deficiencies, breakages, etc. are to be noted and reported to the Principal provided such deficiencies and damages have not been made good by the individuals responsible for same. Inventory.

51 (xxi) The Principal reserves to himself the right to call upon any member of the mess to resign should he think such action is warranted for any cause whatsoever. Resignation.

52 (xxii) For all meals, except tea every member shall attend the mess attired in dress sanctioned in College Standing Orders for class attendances. For those who may wish to do so, dinner dress may be used for dinner. For tea members may attend in sports dress. Members appearing for meals not dressed in accordance with this rule will be asked by the senior member present to leave the mess to attire themselves properly. Dress.

53 (xxiii) No smoking will be allowed during the first half an hour of any meal except during tea. Smoking

Parties

48 (xxiv) No concert parties or other kinds of entertainments will be allowed in the mess building. These entertainments when sanctioned are to be held in the C E Students' Club.

Rules of the Overseer Class Club

49 (i) All students of the Overseer Class have to be members of the Club, and they shall abide by the rules and regulations in force. A breach of the rules or conduct unbecoming a member of the Club will debar him from the enjoyment of the Club privileges to the extent approved by the President on the recommendation of the Club Secretary.

49 (ii) The Principal will be the patron of the Club and the Head Master will be the President of the Club.

The Vice President will be the senior student of the 2nd year, who will also be one of the six members of the Executive Committee.

The President will be assisted in the management of the Club by a committee composed of five members. Five of these will be elected at a general meeting of the Club in the following manner —

- | | | |
|---------------------------|---|--------------------------------------------------------------------|
| (a) Club Secretary, | { | Will be in charge of various outdoor games connected with the Club |
| (b) Tennis Secretary, | | |
| (c) Hockey Secretary, | | |
| (d) Football Secretary, | | |
| (e) Volleyball Secretary, | | |

Disciplinary and financial control will be exercised by the Head Master Overseer Class.

49 (iii) (a) Each student of the Overseer class will pay compulsorily, Rs 5 per mensem for each of the 9 months of

each season for Club Recreation and Boating, of which Rs 3 will be credited to the Club and Recreation Fund and Rs 2 to the Boating Fund

(c) Each will pay compulsorily an entrance fee of Rs 3 upon first joining the College the whole of which will be credited to the Club and Recreation Fund

Annual Regatta Rules

50 (i) *President*—The Principal will appoint a member of the College Staff as President of the Regatta Committee

The President will choose his own Committee

50 (ii) *Date*—The Annual Regatta will be held early in June on a date fixed by the Principal on the recommendation of the President

The Annual Regatta is open to such students of both Civil Engineer and Over sea colleges as have passed both the swimming and rowing tests

Heats for the various events of the Regatta will take place on dates to be notified by the President

50 (iii) *Entries and Entrance fee*—All entries will close at noon on a date to be notified by the President

The entrance fees will be 8 annas for entrants per challenge event excluding the coxswains

50 (iv) *Events*—The Regatta events will be as follows —

- 1 Challenge Single Sculls
- 2 Challenge Double Sculls
- 3 Challenge Pair Oars
- 4 Challenge Fours
- 5 (a) Swimming Race }
 (b) Pontoon Race } For Indian garrison
- 6 Greasy Pole (Open to public)

50 (v) *Course*—All events will be rowed on the Ganges Canal downstream. The finishing point will be about 300 yards above the Ganeshpur bridge. The length of the course will be as follows —

For events 1, 2 and 3— $\frac{1}{2}$ mile

For event 4— $\frac{3}{4}$ mile

50 (vi) *Substitutes*—One substitute will be allowed to row in a four to replace a man who is unfit provided that the substitute is eligible and his name has not been entered in any other crew in that event. The name of the substitute need not be submitted.

No substitute will be allowed in half mile races.

50 (vii) Events 1, 2, 3 and 4 are open to students of both the Civil Engineer and Overseer classes, but the crews and cox are to be either all Civil Engineer class students or all Overseer class students. A Civil Engineer class crew and cox may consist of a crew and cox drawn from all 3 years and similarly an Overseer class crew and cox may consist of a crew drawn from both years. There is no special race in which crews from any particular year compete against another such crew.

50 (viii) *Punctuality*—Heats will be started punctually at the time fixed. Competitors should arrive at the starting point 10 minutes before the time in order to adjust stretchers and straps, etc. Any crew not found ready at the time fixed for the start is liable to be disqualified.

50 (ix) *Disqualification*—(a) Any crew causing delay at the start by inability to turn and manoeuvre their boat as ordered by the starter will be disqualified.

(b) Any crew fouling another crew during the race by touching with their oars or boat the oars or boat of the other crew when in the latter crew's water will be disqualified.

No crew is permitted to take its opponent's water unless it is leading by two lengths and on the approach of the other it must give way and retire to its own water

50 (x) *General*—A boat is never to be brought into the bank or taken out from the bank unless the boat is pointing upstream. Thus a boat must always be turned round after a race before approaching the bank

50 (vi) *Prize distribution*—The prize distribution will take place soon after the last race is rowed. Prizes will be awarded for events 1, 2, 3 and 4 and also for boating (best oar in Civil Engineer Class 3rd year or Overseer Class 2nd year). The prizes for the events 5 and 6 will not be awarded but will be sent over to Adjutant K G O Bengal Sappers and Miners to be given to the winners by the Commandant

Boating and Swimming Rules

51 (i) These events will be in charge of a member of the staff who will be appointed by the Principal each year and who will be known as Officer in-charge Boating

51 (ii) The duties of Officer in charge Boating will be as follows —

- (a) To arrange for the swimming tests in consultation with the President Recreation on or about November 15 April 1 and July 1 each session and to maintain a record of the results of these tests
- (b) To arrange and supervise the coaching in rowing of such students as have passed the swimming test and also to arrange for the rowing test
- (c) To arrange to store up all boats by June 30 and report to President Recreation his having done

To inspect the boats from time to time and report the result of these inspections

- (d) To report to President Recreation by January 31 each year the condition of each boat and submit an estimate for the cost of repair, varnishing, etc and to see that repairs, etc are completed by March 15 at the latest
- (e) To submit to President Recreation by May 31 his proposals, if any, for the replacement of old boats by new
- (f) To maintain a log book of boats, giving the following inventories —
 - (i) number and description of each boat, and its equipment,
 - (ii) year of its purchase or building and the purchase price (together with freight, etc) or cost of building,
 - (iii) cost of repairs (including varnishing) executed during the College session, together with dates of execution

51 (iii) *Swimming*—All students of the Civil Engineer and Overseer classes are required to pass the swimming test before they can be permitted to take up rowing

Students who wish to learn to swim must begin their lessons in Amber Talab (or in the College Swimming Tank when it is completed) and not in the main canal. Such students will take their lessons only at times arranged by Officer in-charge of Boating who will see that the Boatman is present at these lessons

Students will not be allowed to enter the boats or bathe in the main canal till they have qualified in swimming

The swimming tests will be held each year on or about November 15, April 1, and July 1. The test shall consist of swimming half way across the canal and back and will take place downstream of Solani Aqueduct.

Maximum marks allotted for the test are —

For Civil Engineer Class students—30

For Overseer Class students—20

51 (iv) *Rowing*—The rowing test will be held in the last week of April.

To pass the test a student must be able to handle the oars properly, should be able to backwater with either or both hands and should be able to turn the boat in any direction.

No marks will be allotted for this test.

Only such students as have passed this test will be allowed to enter the Regatta.

51 (v) *Boating*—Boating season will be from the beginning of April to first week in June during which the finale of Annual Regatta will be held.

Boating is only allowed in the reach of the canal between the brick lions below the Roorkee city bridge and the Ganeshpur bridge.

No students will be permitted to take out boats before April 1.

To encourage rowing the boating season may be extended till the end of June.

Students will not be permitted to take out boats after June 30.

Special Rules.

52 (i). All European students are expected to attend Divine Service once every Sunday at their own place of worship.

52 (ii). Indian students of Overseer and Draftsman classes, as well as those of the Civil Engineer Class, who do not join the common mess will make their own arrangements for messing.

53. Students, whether European or Indian, of the Overseer and Draftsman classes will make their own arrangements for messing.

54. Students, whether European or Indian, of the Civil Engineer Class will make their own arrangements for messing unless they join the Common Civil Engineering Class Mess.

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YEARLY LISTS OF STUDENTS, WHO HAVE PASSED OUT OF THE COLLEGE FROM 1937 INCLUSIVE. (FOR LISTS DATING BACK TO 1935 INCLUSIVE SEE CALENDAR FOR 1939-40. FOR LISTS DATING BACK TO 1934 INCLUSIVE SEE CALENDAR FOR 1938-39. FOR LISTS DATING BACK TO 1929 INCLUSIVE SEE CALENDAR FOR 1934-35. FOR LISTS DATING BACK TO 1910 INCLUSIVE SEE CALENDAR FOR 1928), AND FOR LISTS TO 1848 SEE CALENDAR FOR 1910.

1937

No	Names	Where educated	Marks gained	Per cent	Remarks
CIVIL ENGINEER CLASS THIRD YEAR (Full marks—8,090)					
1	Kedar Nath Misra	University of Allahabad	5811	72	Honours Diploma as Civil Engineer Council of India Prize of Rs 1 000 for General Proficiency Sushula and J Mittra Memorial Silver Medal for Indian student who obtains highest marks in Chemistry, and Silver Medal for Surveying
2	Bhawani Shan ler Sharma	Meerut College, Meerut	5716	71	Honours Diploma as Civil Engineer Thomason Prize of Rs 250 for the most distinguished stu dent who obtains the Honours Diplo ma but does not gain the Council of India Prize Cautley Memorial Gold Medal for Mathema tics, Group II Cal cott Reilly Memorial Gold Medal for Ap plied Mechanics Silver Medal for Me chanical Engineering
3	Shri Krishna Agarwal	Government Jubi lee Intermedi ate College, Lucknow	5708	71	Honours Diploma as Civil Engineer Rai Bahadur Kanhaiya Lal Gold Medal for the most distinguish ed Indian student who does not obtain the Council of India or Thomason Prize General MacLagan's Prize of books for Electrical Engineer ing and Physics Silver Medals for Civil Engineering (Theoretical) and Laboratory Practice Group IV (Practical)

1937

No	Names	Where educated	Marks gained	Per cent	Remarks
4	Harish Chandra Kaul	B N S D Inter mediate College Cawnpore	5610	69	Honours Diploma as Civil Engineer Thomason Memorial Gold Medal and books worth Rs 25 for the best en gineering designs (Project)
5	Ram Bhas	D A V College Lahore	5540	69	Honours Diploma as Civil Engineer
6	Har Bhan Kishore Agar wala	Agra College Agra	5103	64	Ordinary Diploma as Civil Engineer
7	Bishti Saroj Bansal	Government College Lahore	5165	64	Ordinary Diploma as Civil Engineer and Silver Medal for Drawing
8	Chandra Nara yan Shukla	Benares Hindu University Benares	5168	64	Ordinary Diploma as Civil Engineer
9	Sada Bhan Mathur	University of Allahabad	5161	64	
10	Dharm Lal	D A V College Dehra Dun	5080	63	
11	Leonard R Helan	St George's College Manor House, Mus soorie	4871	60	
12	Jalal Banerjee	St Stephen's College Delhi	4857	60	Ordinary Diploma as Civil Engineer
13	Indar San Chopra	Government College Ludhiana	4820	60	
14	Raghu Nath Singh Gahlot	Udaipur Pratap Intermediate College Benares	4742	59	

1937

No	Names	Where educated	Marks Gained	Per cent.	Remarks
15	Rama Dayal ..	Government Jubilee Inter- mediate College, Lucknow.	4657	58	} Ordinary Diploma as Civil Engineer.
16	Kapur Chand Gupta.	Forman Christian College, Lahore.	4367	54	
17	Alim Uddin .	Meerut College, Meerut.	4297	53	
	Meher Singh .	Hindu College, Delhi	4865	60	

1937

No	Names	Where educated	Marks secured	Per cent	Remarks
OVERSEER CLASS SECOND YEAR (Full marks—4200)					
1	Shyam Sander Agarwala	D N Hgl School Meerut	921	70	Higher Certificate as Overseer Silver Medal and Rs 100 for General Merit Rai Bahadur Kanha ya Lal Silver Medal for Indian student who stands 1st in the class The Durga Dass Dutt Silver Medal for best Indian stu- dent obtaining Higher Certificate Silver Medals for Descriptive Engi- neering Surveying and Workshops Group V
2	Sultan Ahmad Makhdum	Maharaja s College Jaipur	9859	88	Higher Certificate as Overseer Rai Bahadur Kan- ha ya Lal Silver Medal for Indian student who stands 2nd in the class Silver Medal for Mathe- matics (Elemen- tary) Sullivan Memorial Silver Medal for Mec- hanics Keay Memorial Silver Medal and about Rs 18 for Estimat- ing
3	Hukam Chandra Jain.	Shri Mahab r Jain High School Delhi	966	83	Higher Certificate as Overseer and Silver Medal for Drawing

1937

No	Names	Where educated	Marks secured	Per cent	Remarks
4	Shivo Kumar	N A S High School Meerut	7655	63	Higher Certificate as Overseer Fairley Memorial Silver Medal for Applied Mechanics
5	Radh Lal	Meerut College, Meerut	640	63	Higher Certificate as Overseer
6	Sheoraj Singh	Ditto	2581	61	} Ordinary Certificate as Overseer
7	Manmohan K. Pande	La Martiniere College, Lucknow	2538	60	
8	Shanker Saran	B N S D Intermediate College Cawnpore	2530	60	Higher Certificate as Overseer
9	Ratan Kumar Dbeer	D A V College Cawnpore	2499	60	Ordinary Certificate as Overseer and Silver Medal for Project
10	Om Prakash Gupta	Private	2483	59	} Ordinary Certificate as Overseer
11	Chandra Prakash Goyal	Meerut College Meerut	2483	59	
12	Khayali Ram Peary Lal Sharma	Ditto	2370	56	
13	Dhani Ram	D A V Intermediate College Dehra Dun	2360	56	
14	Raghubar Dayal Mahesh.	D N High School, Meerut	2276	54	Ordinary Certificate as Overseer and Silver Medal for Accounts
15	Shukhar Ch and Jain	M B High School, Muktsar district Ferozepore	2257	54	} Ordinary Certificate as Overseer
16	Chandra Prakash	D A V High School, Muzaffar nagar	2256	54	

1937

No	Names	Where educated	Marks gained	Per cent	Remarks
17	Bishen Gopal Gupta	Bareilly College, Bareilly	2255	54	}
18	Suraj Bhan	Meerut College, Meerut	2241	53	
19	Trilok Chand Singhal	Government High School, Hapur	2131	51	
20	Rajeshwar Nath Bhatnagar	S. M. Intermediate College, Chan- dani.	2130	51	} Ordinary Certificate as Overseer
	Mohammad Azim	Lucknow Christian College, Luck- now	2185	52	
	Abdul Sami	Kubair High School, Dabai	2109	50	

1937

No	Names of students	Remarks
	DRAFTSMAN CLASS, THIRD YEAR	No students of this Class passed out this year.

1939

No	Names	Where educated	Marks gained	Per cent	Remarks
CIVIL ENGINEER CLASS, THIRD YEAR (Full marks—8090)					
1	Jagdish Sharan Jain	N. D. College Lahore	6541	78	Honours Diploma as Civil Engineer Council of India Prize of Rs 1000 for General Proficiency Cautley Memorial Gold Medal for Mathematics, Group II General MacLagan's Prize of books for Electrical Engineering and Physics Silver Medals for Civil Engineering (Theoretical) Drawing and Mechanical Engineering
2	Nirmala Devi Bhushan Bartoli	College of Science University of Allahabad	6122	76	Honours Diploma as Civil Engineer Thomason Prize of Rs 250 for the most distinguished student, who obtains the Honours Diploma, but does not gain the Council of India Prize Sushila and J. Mitra Memorial Silver Medal for Indian student who obtains highest marks in Chemistry
3	Sher Bahadur	Bareilly College Bareilly	6026	74	Honours Diploma as Civil Engineer Rai Bahadur Kanhaiya Lal Gold Medal for the most distinguished student who does not obtain the Council of India Prize or Thomason Memorial Prize Calcott Reilly Memorial Gold Medal for applied Mechanics Silver Medal for Surveying

1938

No.	Names	Where educated	Marks obtained	Per cent.	Remarks
4	Stanislans Francis Braganza	St. Joseph's College, Naini Tal.	5899	73	Honours Diploma as Civil Engineer. The Puran M. I. Silver Medal for Public Health Engineering
5	Gulzar Singh S. Jhu.	Mohindra College, Patiala	5812	72	Honours Diploma as Civil Engineer.
6	Prabhat Das ..	University of Allahabad.	5714	71	Honours Diploma as Civil Engineer. Thomson Memorial Gold Medal and books worth Rs. 25 for the best Engineering designs (projects).
7	Bakshi Madan Mohan Anand.	Hindu Sabha College, Amrit- sar.	5588	69	} Honours Diploma as Civil Engineer.
8	Rameshwar Lal Agarwal.	Government Inter- mediate College, Moradabad.	5547	69	
9	Edmund Philip	St. Xavier's College, Calcutta.	5341	66	
10	Kantik Prasad	University of Allahabad.	5181	64	Ordinary Diploma as Civil Engineer. Silver Medal for Laboratory Practice group IV (Practical)
11	D. N. Kochhar	Murray College, Sialkot	5142	64	} Ordinary Diploma as Civil Engineer.
12	Nawal Kishore Mehra.	Government College, Ajmer.	5018	62	
13	Gurdial Singh Berrar.	Ewing Christian College, Allah- abad.	4964	61	
14	Avinash Chandra Mathur	Government Intermediate College, Allah- abad.	4893	60	

1933

No	Names	Where educated	Marks secured	Per cent.	Remarks
13	Hari Krishna Das Capoor	Fering Christian College, Allah abad	4796	56	} Ordinary Diploma as Civil Engineer.
14	Krishna Raj Mishra Ratta	Forman Christian College, Lahore	4665	55	
15	Maharaj Gopal	D. A. V. College, Lahore	4547	56	
16	Kamalwar Bhatia Bhatia	Herbert College Kotah	4444	53	
(Full Marks 7500)					
	Lieutenant N. S. Bhagat	India Military Academy Dehra Dun	5076	69	} Honorary Diploma as Civil Engineer
	Lieutenant Anand Singh	Ditto	5016	67	
	Lieutenant A N. K. Bhargava	Ditto	4153	59	Ordinary Diploma as Civil Engineer

1933

No	Names	Where educated	Marks gained	Per cent	Remarks
OVERSEER CLASS SECOND YEAR (Full marks—4200)					
1	Nameshwar Prasad Jain	D A V Inter College, Debra Dun	3279	78	Higher certificate as Overseer Silver Medal and Rs 100 for General Merit Rai Bahadur Kanhaiya Lal Silver Medal for best Indian student who stands first in the class The Durga Dass Dutt Silver Medal for best Indian student, obtaining Higher certificate Sullivan Memorial Silver Medal for Mechanics Keay Memorial Silver Medal and Rs 18 for estimating Silver Medal for Descriptive Engineering Work shop Group V and Project The Puran Mal Silver Medal for Public Health Engineering
2	Sattya Narain Gupta	Government Inter College, Etawah	3125	74	Higher certificate as Overseer Rai Bahadur Kanhaiya Lal Silver Medal for Indian student who stands second in the class Silver Medals for Mathematics (Elementary) and Surveying
3	Jai Bhagwan Gupta	Hindu A N High School, Gangoh	3003	72	Highest Certificate as Overseer Fairer Memorial Silver Medal for Applied Mechanics

1938

No	Names	Where educated	Marks obtained	Percent	Remarks
4	Raj Kumar Mishra	D. A. V. College Cawnpore	2578	69	Higher Certificate as Overseer
5	Malhan Singh	D. J. High School Baraut	2537	68	
6	Har Narayan Maheshwari	Government High School, Amroha	2712	65	
7	Badeo Sharma	N. R. E. C. Inter College, Khurja	2705	64	
8	Dhan Lal Sah	Government High School, Naini Tal	2696	64	Higher Certificate as Overseer Silver Medal for Accounts
9	Kailash Chandra	Hitharins City College, Jabulpore	2697	64	
10	Anand Prakash	Government High School, Muzaffarnagar	2696	64	Higher Certificate as Overseer
11	Malabar Prasad Jain	Meerut College Meerut	2601	63	
12	Har Swarup Gupta	K. P. Inter College, Allahabad	2591	62	Ordinary Certificate as Overseer
13	Roshan Lal	B. N. S. D. Inter College Cawnpore	2551	61	Higher Certificate as Overseer
14	Shiva Charan Lal	D. S. Inter College, Aligarh	2527	60	
15	Bisheshwar Dayal Agarwal	Thomason College, Roorkee	2510	60	Ordinary Certificate as Overseer
16	Mahendra Singh Gill	Government C. O. High School, Roorkee	2507	60	
17	Kailash Chandra Goyal	Meerut College, Meerut	2456	58	
18	Shive Charan Dass Sharma	Ditto	2446	58	

1938

No	Names	Where educated	Marks gained	Per cent	Remarks
19	Ved Prakash Garg	Government High School Bijnor	2438	58	Ordinary Certificate as Overseer
20	Bani Mohan Sinha	Anglo Bengali Inter College Allahabad	2411	57	
21	Bisheshwar Prasad Garg	Christian Inter Col lege, Lucknow	2397	57	
22	Hasan Aslari	Government High School Saharan pur	2379	57	
23	Mittar Sen Garg	Government High School Roorkee	2378	57	
24	Krishna Saroop	Bareilly College Bareilly	2368	56	Ordinary Certificate as Overseer
25	Sewa Ram	Government High School Muzaffar nagar	2360	56	
26	Satya Prakash Gupta	Government C O High School Roor kee	2359	56	
27	Jugminder Dass	D N Jain High School Baraut	2343	56	
28	Om Prakash Gupta	Meerut College Meerut	2283	54	
29	Atma Ram Gupta	Ditto	2241	53	
30	Jagdish Prakash	Ditto	2205	53	
31	Sriya Raj Singh	D N High School Meerut	2180	52	
32	Nurt Behari Mathur	Government Inter College Allahabad	2167	52	
33	Shyam Sundar	D A V High School, Muzaffarnagar	2159	51	
34	Bishambhar Sahni Goel	Government High School, Hapur	2151	51	
35	Om Prakash Goyal	N.A.S High School Meerut	2100	50	
	Manak Chand Mehra	Government High School, Ajmer	2103	52	

1938

No.	Names of students	Remarks
DRAFTSMAN CLASS, THIRD YEAR		
1	Jwala Das J Mathur	Certificate as Draftsman in 2nd division. Silver Medal and Rs. 30 for General Merit and Best Draftsman Qualified in Estimating
2	Brahma Shanker Bhatnagar.	Certificate as Draftsman in 2nd division. Silver Medal and Rs 20 for second Best Draftsman Qualified in Estimating
3	Satya Prakash	Certificate as Draftsman in 2nd division Qualified in Estimating
4	Ajit Chandra Bose	Certificate as Draftsman in 2nd division Qualified in Estimating

1939

No.	Names	Where educated	Marks gained	Per cent.	Remarks
CIVIL ENGINEER CLASS, THIRD YEAR (Full marks—7000)					
1	Akhtarul Islam Khan	Bareilly College, Bareilly	5822	73	Honours Diploma as Civil Engineer, Council of India Prize of Rs 1,000 for General Proficiency. Silver Medals for Civil Engineering (Theoretical) and Surveying
2	Shri Krishna Arrawala.	University of Allahabad	5678	71	Honours Diploma as Civil Engineer. Thomason Prize of Rs 250 for the most distinguished Student who obtains the Honours Diploma but does not gain the Council of India Prize. Thomason Memorial Gold Medal and books worth Rs 25 for best Engineering Designs
3	Mahabir Prasad Jain	D A V. College, Cawnpore	5501	69	Honours Diploma as Civil Engineer. Rai Bahadur Hanhaiya Lal Gold Medal for the most distinguished Indian student who does not obtain the Council of India or Thomason Memorial Prize.
4	R L. Kaushal	Government College Lahore	5401	68	Honours Diploma as Civil Engineer.
5	Ashoke Kumar Gupta	LaMartiniere College, Lucknow	5402	68	Honours Diploma as Civil Engineer. Silver Medal for Drawing. The Puran Mal Silver Medal for Public Health Engineering.

1939

No	Name	Where educated	Marks obtained	Percentage	Remarks
6	Virendra Nath Srivastava	University of Allahabad	5355	67	Honours Diploma as Civil Engineer.
7	Debi Saran Sinha	Queen's College, Benares	5236	67	Ordinary Diploma as Civil Engineer Cautley Memorial Gold Medal for Mathematics, (Group II). Calcott Reilly Memorial Gold Medal for Applied Mechanics General MacLagan's Prize of books for Electrical Engineering and Physics Silver Medal for Mechanical Engineering Sushila and J. Mitra Memorial Silver Medal for Indian student, who obtains highest marks in Chemistry.
8	Kewal Krishan	Government College Ludhiana	5226	67	Ordinary Diploma as Civil Engineer
9	Narosh Chandra Baksons	D A V Intermediate College, Dehra Dun	5226	65	Ordinary Diploma as Civil Engineer Silver Medal for Laboratory Practice (Group IV), Practical
11	Roshan Lall Aggarwal	D A V College, Lahore	5094	64	Ordinary Diploma as Civil Engineer
12	Abdul Hamid	Meerut College, Meerut	4888	61	
13	Purushottam Singh	Lucknow University Lucknow	4622	58	
14	Partul Chandra Khanna	Government College, Lahore	4412	55	

1939

No	Names	Where educated	Marks gained	Per cent.	Remarks
CIVIL ENGINEER CLASS, THIRD YEAR					
(Full marks—7990)					
1	Akhtarul Islam Khan	Bareilly College, Bareilly	5822	73	Honours Diploma as Civil Engineer Council of India Prize of Rs 1,000 for General Proficiency Silver Medals for Civil Engineering (Theoretical) and Surveying
2	Shri Krishna Agrawala.	University of Allahabad	5678	71	Honours Diploma as Civil Engineer Thomason Prize of Rs 250 for the most distinguished Student who obtains the Honours Diploma but does not gain the Council of India Prize Thomason Memorial Gold Medal and books worth Rs 25 for best Engineering Designs
3	Mahabir Prasad Jain	D A V College, Cawnpore	5501	69	Honours Diploma as Civil Engineer Rai Bahadur Kanhaiya Lal Gold Medal for the most distinguished Indian student who does not obtain the Council of India or Thomason Memorial Prizes
4	R L Kaushal	Government College Lahore	5404	68	Honours Diploma as Civil Engineer
5	Ashoka Kumar Gupta	LaMartiniere College, Lucknow	5402	68	Honours Diploma as Civil Engineer Silver Medal for Drawing The Puran Mal Silver Medal for Public Health Engineering.

1939

No	Name	Where educated	Marks obtained	Per cent	Remarks
6	Virendra Nath Srivastava	University of Allahabad	5355	67	Honours Diploma as Civil Engineer.
7	Debi Saran Sinha	Queen's College, Benares	236	67	Ordinary Diploma as Civil Engineer. Cautley Memorial Gold Medal for Mathe- matics, (Group II). Calcott Hooley Memo- rial Gold Medal for Applied Mechanics General MacLagan's Prize of books for Electrical Engineer- ing and Physics Silver Medal for Mechanical Engineer- ing Sushila and J. Mitra Memorial Silver Medal for Indian student, who obtains highest marks in Chemistry.
8	Kewal Krishan	Government Col- lege Ludhiana	5225	65	Ordinary Diploma as Civil Engineer
9	Narash Chandra Bakshya	D A V Inter- mediate College, Dohra Dun	5226	65	Ordinary Diploma as Civil Engineer Silver Medal for Laboratory Practice (Group IV), Prac- tical
10	John Theodore Talibuddin	Government Jubilee Intermediate Col- lege, Lucknow	5100	64	Ordinary Diploma as Civil Engineer
11	Roshan Lal Aggarwal	D A. V. College, Lahore	5024	64	
12	Abdul Hamid	Meerut College, Meerut	4888	61	
13	Purushottam Singh	Lucknow Univer- sity, Lucknow	4622	58	
14	Partul Chandra Khanna	Government Col- lege, Lahore	4412	55	

1939

No	Names	Where educated	Marks gained	Per cent	Remarks
15	Bhupendra Sarup Johri	University of Allahabad	4408	55	Ordinary Diploma as Civil Engineer
16	Harish Chandra Goel	D A V Intermediate College, Dehra Dun	4407	55	
17	Darshan Lal Gupta	Hindu University Engineering College, Benares	4353	54	
18	Jassa Singh	Agra College, Agra	4226	53	
19	Amarnath Sud	Sanatam Dharam College Lahore	4089	51	
20	Bhim Sam Aggarwal	Gordon College, Rawalpindi	4059	51	After ignoring equitation test in his case Vide Government Order United Provinces, Education Department no 3832/XV—80739 dated the 22nd December 1939
21	S Anzar Ahmad Naqvi	University of Allahabad	3955	51	
	Bishambhar Dayal Gaur	Jaswant College Jodhpur (Full marks 6360)	5127	64	
	Lieut Jogendra Singh Dhillon	Indian Military Academy, Dehra Dun	4164	65	
	Lieut Amar Datt	Ditto	4160	65	
	Lieut M Anwar Khan	Ditto	4136	65	Honours Diploma as Civil Engineer

1939

No.	Name	Where educated		Marks gained	Per cent.	Remarks
OVERSEER CLASS, SECOND YEAR (Full marks—4 200)						
1	Jitendra Kumar Mittal	Meerut Meerut	College,	3181	76	Higher Certificate as Overseer Silver Medal and Rs 100 for General Merit. Raj Bahadur Kanhaiya Lal Silver Medal for best Indian student who stands 1st in the class The Durga Deas Dutt Silver Medal for best Indian student obtaining Higher Certi- ficate. Silver Medals for Surveying, Drawing, Workshops (Group V), and Pro- ject.
2	Karlash Chandra Jain.	Meerut Meerut	College,	3052	73	Higher Certificate as Overseer Raj Bahadur Kanhaiya Lal Silver Me- dal for Indian student who stands 2nd in the class. Silver Medal for Mathematics (Ele- mentary). Fairley Memorial Silver Medal for Applied Mechanics. Sullivan Memorial Silver Medal for Me- chanics.
3	Tara Chand ..	N. R. E. C. College, Khurja.		2998	71	Higher Certificate as Overseer, Silver Medal for Descriptive Engi- neering and Accounts
4	Jai Prakash ..	Meerut Meerut	College,	2973	71	Higher Certificate as Overseer. Keay Mo- morial Silver Medal and Rs 18 for Esti- mating
5	Prem Narain Tayal.	Government Inter mediate College, Allahabad.		2920	70	Higher Certificate as Overseer.

1939

No	Names	Where educated	Marks gained	per cent	Remarks
6	Hari Krishna Gupta	P B A S High School, Hathras	2825	67	Higher Certificate as Overseer Silver Medal for Accounts
7	Niranjan Lal Sharma	D N High School, Meerut	2703	67	
8	Devi Shankar Varma	A V High School Anupshahr	2740	65	
	Brj Bhushan Lal	Government High School, Muzaffar nagar	2720	65	Higher Certificate as Overseer
10	Raghuraj Singh	Udai Pratap Col lege, Benares	2692	64	
11	Om Prakash	D A V High School Muzaffar nagar	2691	64	
12	Kailash Chand	Meerut College, Meerut	2686	64	Higher Certificate as Overseer. The Puran Mal Silver Medal for Public Health En gineering
13	Jai Prakash Goel	Meerut College, Meerut	2679	64	
14	Om Prakash Kansal	Meerut College, Meerut	2677	64	
15	Bal Krishen	D N High School, Meerut	2676	64	
16	Harish Chandra Gupta	G C O High School, Roorkee	2664	63	Higher Certificate as Overseer
17	Gulzari Lal Goel	Kashi Ram High School, Saharanpur	2650	63	
18	Satya Prakash Maithel	Meerut College Meerut	2639	63	
19	Ram Prasad Gupta	S D High School Etawah	2637	63	
20	Kailash Chandra	Government Inter mediate College, Moradabad	2597	62	
21	Ranbir Singh	Meerut College, Meerut	2500	62	

1939

No	Names	Where educated	Marks		Remarks
			Obtained	Per cent.	
22	Om Prakash Gupta	D. S. Intermediate College, Aligarh.	2550	61	Higher Certificate as Overseer.
23	Shiva Kumar Sharma	Government High School, Muzaffarnagar	2575	61	Ordinary Certificate as Overseer
24	Jagdish Saran Gupta	Government Intermediate College, Moradabad.	2567	61	Higher Certificate as Overseer.
25	Sia Ram Sharma	Government C. O. High School, Meerut	2553	61	
26	Shyam Lal	Meerut College, Meerut	2543	61	
27	Rameshwar Das	H. A. V. High School, Deoband.	2541	60	
28	Chander Sen	Kashi Ram High School, Saharanpur	2530	60	
29	Om Prakash Gupta	K. E. M. U. J. Intermediate College, Lakhaoti.	2529	60	Ordinary Certificate as Overseer.
30	Dhaneshwar Hastogi	Meerut College, Meerut.	2500	60	
31	Mitra Sen	B. N. S. D. Intermediate College, Cawnpore	2491	59	
32	Om Prakash Jain	Government C. O. High School, Roorkee.	2485	59	
33	Bhawani Prasad Goel.	Jat Intermediate College, Lakhaoti.	2477	59	
34	Jayanti Prasad Goyal	N. R. E. C. College, Khurja	2465	59	
35	Prakash Chander Jain.	Denney's High School, Rawalpindi.	2437	58	

1939

No	Names	Where educated	Marks gained	Per cent.	Remarks
36	Mukhtar Singh Ikhtar	J V. High School, Baraut	2434	58	} Ordinary Certificate as Overseer
37	Maheshwar Prasad Srivas tava	D A V. High School, Cawnpore	2432	58	
38	Padam Prasad Jain	D N High School, Meerut	2362	56	
39	Hukam Chand Jain	K R High School, Saharanpur	2349	56	
40	Brij Gopal	Government C O High School, Roorkee	2324	55	
41	Jagdish Prasad Agarwala.	D A V Inter mediate College, Dehra Dun	2305	55	
42	Jodh Singh Negi	Ditto	2298	55	
43	Saiyid Riazul Hasan Burney	Muslim Univer sity, Aligarh	2284	54	}
44	Muhammad Wasim Qureshi	Jubilee Inter mediate College, Lucknow	2100	50	

1939

N	Names of Students	Remarks
DRAFTSMAN CLASS THIRD YEAR		
1	Anand Chandra	Certificate as Draftsman in 1st Division Silver Medal and Rs.20 for Best Draftsman Qualified in Estimating
2	Tulsi Nath	Certificate as Draftsman in 1st Division Silver Medal and Rs.20 for 2nd Best Draftsman Qualified in Estimating
3	Lakshmi Narayan	} Certificate as Draftsman in 2nd Division Qualified in Estimating
4	Sri Ram Chandra Sharma	
5	M. Hamid Khan	Certificate as Draftsman in 3rd Division Qualified in Estimating

1940

No.	Names	Where educated	Marks gained	Per cent.	Remarks
CIVIL ENGINEER CLASS, THIRD YEAR (Full marks—6,990)					
1	Ramesh Chandra Agrawala	Meerut College, Meerut	5215	75	Honours Diploma as Civil Engineer. Council of India Prize of Rs.1,000 for General Proficiency. Calcott Reilly Memorial Gold Medal for Applied Mechanics Silver Medals for Civil Engi- neering (Theoretical) and Mechanical Engi- neering
2	Ravi Datta	Meerut College, Meerut.	5183	74	Honours Diploma as Civil Engineer Thom- ason Prize of Rs 25 for the most distin- guished student who obtains the Honours Diploma, but does not gain the Council of India Prize. Silver Medal for Surveying Sushila and J Mitra Memorial Silver Medal for Indian student who obtains highest marks in Chemistry.
	Gangeshwar Dayal Mathur	Meerut College, Meerut	5189	74	Honours Diploma as Civil Engineer Rai Bahadur Kanhaiya Lal Gold Medal for the most distinguished Indian student who does not obtain Council of India or Thomason Memorial prizes. Cautley Memorial Gold Medal for Mathe- matics (Group II). Silver medal for Drawing

1940

No.	Names	Where educated	Marks secured	Percent	Remarks
CIVIL ENGINEERING CLASS, THIRD YEAR—(contd)					
4	Kali Charan, B.Sc.	University of Allah abad	502	72	Honours Diploma as Civil Engineer. Tho- mason Memorial Gold Medal and books worth Rs 25 for best Engineering Designs. General MacLagan's Prize of Books for Electrical Engineering and Physics. Silver Medal for Labora- tory Practice Group IV (Practical).
5	Lakshmi Chandra Arora	Government Inter- mediate College, Fatehgarh	497	71	Honours Diploma as Civil Engineer
6	Shri Kant Gupta	Ditto	492	70	Honours Diploma as Civil Engineer. Tho- mason Memorial Silver Medal for Public Health Engineering
7	Gauri Narayan Dikshit, B.Sc.	University of Allah abad	472	65	Honours Diploma as Civil Engineer
8	Abdur Rashid	Government College, Lahore	471	67	
9	Satinder Nath Gupta	Ditto	466	67	
10	Arya Bhushan B.Sc.	Allahabad Univer- sity, Allahabad	461	66	
11	Hari Krishna	University of Allah abad	457	66	
12	Kailash Chandra Goyal	Meerut College, Meerut	454	63	
13	Bhola Nath Vash, B.Sc.	Ditto	453	65	
14	Bhagwat Pra- sad	Bareilly College, Bareilly	452	65	
15	Phul Prakash Gupta	D. S. Intermediate College, Aligarh	446	64	
16	Prem Nath Sud, B.A.	Government College, Lahore	435	62	
17	Harbans Lal Chhabra	D. A. V. College, Lahore	434	62	Ordinary Diploma as Civil Engineer
18	Ram Krishna	Meerut College, Meerut	433	62	
19	Chandra Pra- kash Govil	Government College Ajmer	426	61	

1940

No	Names	Where educated	Marks gained	Per cent	Remarks
CIVIL ENGINEER CLASS TRIPD YEAR—(concl'd)					
20	Parimal Kumar Mukherjee	College of Science, Nagpur	4230	61	} Ordinary Diploma as Civil Engineer
21	Benarsidas Tan dan	S D College Cawnpore	4131	59	
22	Bidhu Ranjan Sen M.Sc	Christian College Lucknow	4095	59	
23	Mahesh Prasad Kapoor	Ewing Christian College Allahabad	4014	57	
24	Shakti Kumar Charan.	Agra College Agra	3944	57	
25	Amal Kumar Roy	Government Inter mediate College Allahabad	3896	56	
26	Ved Mitra Manglik	D A V College, Dehra Dun	3758	54	

1940

No.	Names	Where educated	Marks out of 100	Percent	Remarks
OVERSEER CLASS, SECOND YEAR, (Fall session—4 000)					
1	Vishwanath Prasad.	Government High School, Fatehpur	3264	82	Higher Certificate as Overseer Silver Medal and Rs 100 for General Merit Rai Bahadur Kanhaiya Lal Silver Medal for the best Indian student who stands 1st in the class. The Durga Das Dutt Silver Medal for the best Indian student obtaining Higher Certificate Sullivan Memorial Silver Medal for Mechanics The Puran Mal Silver Medal for Public Health Engineering Silver medals for descriptive engineering, surveying, drawing and workshops (Group V)
2	Krishna Kumar	Government College, Ajmer	2954	74	Higher Certificate as Overseer Rai Bahadur Kanhaiya Lal Silver Medal for Indian student who stands 2nd in the class
3	Sahdeo Prasad	Meerut College, Meerut	2923	73	Higher Certificate as Overseer Silver Medal for Mathematics Elementary.
4	Jai Bhagwan Gupta	S M Intermediate College, Chandigarh	2860	72	Higher Certificate as Overseer Fairly Memorial Silver Medal for Applied Mechanics Key Medal Silver Medal and Rs 18 for Estimating
5	Om Prakash Gupta	Government Technical School, Lucknow	2847	71	Higher Certificate as Overseer

1940

No	Names	Where educated	Marks gained	Per cent	Remarks
6	Virendra Nath Tripathi	B N S D Inter mediate College Cawnpore	2726	68	Higher Certificate as Overseer.
7	Mahendra Na ram Mathur	Meerut College Meerut	2715	68	
8	Pratap Singh Perti	A P Mission Boys' High School Dehra Dun	2684	67	
9	Brij Mohan Lal Gupta	Hindu College, Delhi	2675	67	
10	Qaisar Husain	Government High School, Muzaffar nagar	2659	66	
11	Ramji Lal Garg	Agra College, Agra	2586	65	
12	Sayid Muham mad Murtaza Rizvi	Forbes High School Fyzabad	2559	64	
13	Shiva Prakash Singhal	Meerut College, Meerut	2485	62	
14	Tarlok Chandra Agarwal	Lucknow Christian College, Lucknow	2456	61	
15	Krishna Chan dra Gupta	University of Allah abad	2439	61	Higher Certificate as Overseer Silver Medal for Project
16	Shiva Dayal Govila	Ditto	2434	61	
17	Puran Chand	Government High School, Muzaffar nagar	2421	61	Higher Certificate as Overseer
18	Jaswant Rai Jain	D A V College Jullundur	2420	61	
19	Mahabir Prasad Jain	Meerut College, Meerut	2396	60	Ordinary Certificate as Overseer
20	Ramesh Chan dra	Ditto	2375	59	
21	Randhir Singh Chohan	Bareilly College, Bareilly	2365	59	
22	Ram Kishore Ojha (Ajmer Merwara)	Government Col lege, Ajmer	2344	59	

1940

No.	Names	Where educated	Marks secured	Per cent.	Remarks
23	Jai Prakash	Meerut College, Meerut	2332	58	} Ordinary Certificate as Overseer.
24	Bhagwat Swa- rup Gupta	N R E C Inter- mediate College, Khurja	2332	58	
25	Mam Chand	Government C O High School, Roorkee	2311	58	
26	Brj Bhushan Sharma	D A V College, Dehra Dun	2295	57	
27	Phool Chand Goyal	Meerut College, Meerut	2262	57	
28	Mahabir Prasad	S D Intermediate College, Muzaffar- nagar	2259	56	
29	Gajai Singh Rawat	K G Government High School, Lans- downe (Gariwal)	2254	56	
30	Davendra Ku- mar Jain	D A V College, Dehra Dun	2237	56	
31	Ugin Sen Gupta	Government C O High School, Roorkee	2212	55	
32	Piaz Ahmad Qarishi	Muslim High School, Buland shahr	2199	55	
33	Bhim Sen	H A V High School, Deoband	2195	55	
34	Chandpat Lal Sharma	K G K High School, Hardoi	2177	54	
35	Talqin Ahmad	Government High School, Muzaffar- nagar	2162	54	
36	Ram Das Mit- tal	Ditto	2153	54	
37	Triloki Nath Sharma	Meerut College, Meerut	2144	54	
38	Raghuvir Da- yal	Government High School, Saharan- pur	2111	53	
"	"	"	"	"	
"	"	"	"	"	
"	Isapur; Krishna Sahai Srivastava (Bharatpur)	St John's College, Agra	2605	65	} Higher Certificate as Overseer. Trained for employment in the Bharatpur State only.

1940

No	Names of students	Remarks
DRAFTSMAN CLASS, THIRD YEAR		
1	Chandi Lal Jaiswar	Certificate as Draftsman in first division Silver medal and Rs 30 for best draftsman. Qualified in Estimating
2	Bimal Kumar Jain	Certificate as Draftsman in first division Silver medal and Rs 20 for second best draftsman. Qualified in Estimating
3	Kailash Chandra Jain	Certificate as Draftsman in first division Qualified in Estimating
4	Hari Deo	Certificate as draftsman in second division Not qualified in Estimating
5	Nihal Chand Gupta	} Certificate as Draftsman in second division Qualified in Estimating
6	Sumer Chand Gupta	
7	Kailash Chand Gupta	

1941

No	Name	Where educated	Marks gained	Per cent	Remarks
CIVIL ENGINEER CLASS, THIRD YEAR (Full Marks—77½)					
1	Vijaya Ram Vaidh	I. C. College Allahabad	6410	82	Honours Diploma as Civil Engineer Council of India Prize of Rs 1,000 for General Proficiency Calcutta Itelly Me- morial Gold Medal for Applied Mecha- nics Calcutta Me- morial Gold Medal for Mathematics (Group II) General MacLagan's prize of books for Electrical Engineering and Physics Sushila and J Mitra Me- morial Silver Medal for Indian student who obtains highest marks in Chemistry Silver Medals for Civil Engineering (Theoretical) and Mechanical Engi- neering
2	Sayid Sabir Ali Wahid	Christ Church College Cawn- pore	6237	80	Honours Diploma as Civil Engineer The- mason Memorial Prize of Rs 250 for the most disting- uished student who obtains the Honours Diploma but does not gain the Council of India prize, Sil- ver Medal for Sur- veying, The Puran Mal Silver Medal for Public Health Engineering

1940

No .	Names of students	Remarks
DRAFTSMAN CLASS, THIRD YEAR		
1	Chandi Lal Jaiswar	Certificate as Draftsman in first division Silver medal and Rs 30 for best draftsman. Qualified in Estimating
2	Bimal Kumar Jain	Certificate as Draftsman in first division Silver medal and Rs 20 for second best draftsman Qualified in Estimating
3	Kailash Chandra Jain	Certificate as Draftsman in first division Qualified in Estimating
4	Hari Deo	Certificate as draftsman in second division Not qualified in Estimating
5	Nihal Chand Gupta	} Certificate as Draftsman in second division Qualified in Estimating
6	Sumer Chand Gupta	
7	Kailash Chand Gupta	

1941

No	Name	Where educated	Marks Gained	Per cent	Remarks
CIVIL ENGINEER CLASS, THIRD YEAR (Full Marks—77½)					
1	Vijaya Ram Vasab	L. C. College, Allahabad	641½	82	Honours Diploma as Civil Engineer Council of India Prize of Rs 1,000 for General Proficiency Calcott Reilly Me- morial Gold Medal for Applied Mecha- nics Cuthy Me- morial Gold Medal for Mathematics (Group II) General MacLagan's prize of books for Electrical Engineering and Physics Sushula and J. Mitra Me- morial Silver Medal for Indian student who obtains high st- marks in Chemistry Silver Medal for Civil Engineering (Theoretical) and Mechanical Engi- neering
2	Sayyid Sabir Ali Wahidi	Christ Church College Cawn- pore	6237	80	Honours Diploma as Civil Engineer Tho- mason Memorial Prize of Rs 250 for the most disting- uished student who obtains the Honours Diploma but does not gain the Council of India prize, Sil- ver Medal for Sur- veying The Puran- mal Silver Medal for Public Works Engine

1941

No	Name	Where educated	Marks gained		Remarks
			Marks	Per cent	
3	Om Prakash	S M Intermediate College Chandausi	6050	78	Honours Diploma as Civil Engineer Rai Bahadur Kanhaiya Lal Gold Medal for the most distinguished student who does not obtain the Council of India or Thomason Memorial Prizes
4	Om Datt Sharma B SC	University of Allahabad	5923	76	Honours Diploma as Civil Engineer Silver Medal for Drawing
5	Dharampal Singh Tomar B SC	Agra College Agra	5860	75	Honours Diploma as Civil Engineer
6	Rajendra Prasad Agarwal	E C College Allahabad	5810	75	
7	Sunder Lal Gupta B A	Government College Lahore	5670	73	
8	Harihar Prasad Ghose	University of Allahabad	5628	72	
9	Profullo Kumar Banerji B SC	Ditto	5494	71	
10	Ratish Mohan Agrawala B A	Ditto	5388	69	
11	Balbir Krishan Uppal	Government College Lahore	5313	68	
12	Brahm Swarup Bhalla	Dyal Singh College Lahore	5282	68	
13	Pratap Singh B SC	E C College Allahabad	5174	66	
14	Anrudh Singh	U P College and S K School Benares	5141	66	

1941

No.	Name	Where educated	Marks Gained	Per cent	Remarks
15	Laxmidas Nivas	University of Allahabad	4043	61	} Ordinary Diploma as Civil Engineer
16	Brj Bhushan Bansal, B.Sc.	Ditto	4944	61	
17	Jyoti Prakash, B.Sc.	Meerut College, Meerut	4978	61	
18	Arun Kumar Sur	University of Allahabad	4947	61	} Ordinary Diploma as Civil Engineer Silver Medal for Laboratory Practice, Group IV Practical
19	Laljan Lal Gupta, B.Sc.	Meerut College Meerut	4895	63	
20	Brj Narsin Dubey	University of Allahabad	4535	63	} Ordinary Diploma as Civil Engineer
21	Krishna Kamal Chakravarti, B.Sc.	Government Junior Intermediate College Lucknow	4671	62	
22	Sayid Habib Hasan, B.Sc.	Lucknow University	4812	62	} Ordinary Diploma as Civil Engineer Thomson Memorial Gold Medal and Prize worth Rs 25 for best Engineering Designs
23	Gurraj Kishore Gupta	Agra College Agra	4704	62	
24	Chaman Lal Aluwalia, B.A.	D.A.V. College Lahore	4782	61	
25	Kulbir Singh	Khalsa College Amritsar	4752	61	} Ordinary Diploma as Civil Engineer
26	Daya Prakash	University of Allahabad	4740	61	
27	Vishwambhar Dayal, B.Sc.	Meerut College Meerut	4605	60	

1941

No	Name	Where educated	Marks gained	Per cent	Remarks
28	Shakti Chand Uppal, B.A	Government Col lege, Lahore	4611	59	} Ordinary Diploma as Civil Engineer
29	Victor Braganza	St Joseph's College, Naini Tal	4563	59	
30	Rajnarayan Misra, B.Sc	Nizam College, Hyderabad, Deccan	4476	57	
31	Arjun Dutt Chowdhri	E C College, Allahabad	4312	55	
32	Ambarish Verma	D. A. V. College, Dehra Dun	4249	55	

1941

No	Names	Where educated	Marks obtained	Percent	Remarks
OUTRIGGER CLASS SECOND YEAR (Full marks 4000)					
1	Krishna Chandra	H. A. S. High School, Kan oha	3285	82	Higher Certificate as Overseer Silver Medal and Rs 100 for general merit, Rai Bahadur Kanhai Lal Silver Medal for best Indian student who stands first in the class The Durga Das Das Silver Medal for best Indian student who obtains Higher Certificate Fairley Memorial Silver Medal for Applied Mechanics Keny Memorial Silver Medal and Rs 18 for Estimating Sullivan Memorial Silver Medal for Mechanics Silver Medals for Descriptive Engineering, Survey and Work shops (Group V)
2	Netra Sharma	Pal Azra College, Agra	3009	75	Higher Certificate as Overseer, Rai Bahadur Kanhai Lal Silver Medal for the Indian Student who stands second in the Class Silver Medals for Mathematics (Elementary) and Drawing
3	Prem Chand Jain	Government High School, Saharanpur	2921	73	Higher Certificate as Overseer
4	Sayid Iftikhar Husain	Government High School, Aligarh.	2904	73	
5	Rama Shankar	Bareilly College, Bareilly.	2809	72	

1941

No	Names	Where educated	Marks gained	Per cent	Remarks
6	Anand Parkash	Meerut College, Meerut	2874	72	Higher Certificate as Overseer
7	Jai Nand Pra kash	Ditto	2825	71	
8	Ram Swarup Vaish	Kashi Ram High School Saha ranpur	2690	67	
9	Rameshwar Dayal	N R E C In termediate Col lege Khurja	2671	67	
10	Salek Chand	D Jain High School, Baraut	2641	66	
11	Mangat Rai Singhal	N A S High School Meerut	2616	65	Higher Certificate as Overseer Silver Medal for project
12	Mahipal Singh	D N High School Meerut	2607	65	
13	Ramesh Chan dra Garg	N R E C In termediate Col lege, Khurja	2586	64	
14	Bhopal Singh	Meerut College, Meerut	2521	63	
15	Praduman Ku mar	Ditto	2515	63	
16	Dhanesh Chan dra Goel	D S Intermedi ate College Aligarh	2411	63	Higher Certificate as Overseer
17	Shanti Swarup Garg	S D Intermedi ate College, Muzaffarnagar	2496	62	
18	Jagdish Saran Goel	S M Intermedi ate College, Chandausi	2473	62	
19	Kunj Behari Lal	Government In termediate Col lege, Etawah	2468	62	Ordinary Certificate as Overseer The Puran Mal Silver Medal for Public Health Engineering
					Higher Certificate as Overseer

1961

No.	Names	Where educated	Marks gained	Per cent	Remarks
20	Atar Singh	D N S High School, Meerut	2462	62	
21	Mahendra Kumar	D A V College, Dehra Dun	2461	62	
22	Lachhmi Prasad Sarawat	D S Intermediate College Aligarh	2450	61	
23	Jai Prakash Agarwal	S D Intermediate College, Muzaffarnagar	2447	61	Higher Certificate as Overseer.
24	Tirki Nath	D N High School Meerut	2446	61	
25	Khalidur Rahman	Government Intermediate College Meerut	2437	61	
26	Mahendra Sharma	St. Andrews College, Gorakhpur	2427	61	
27	Penbur Prasad Jain	Durbar Intermediate College, Rewa	2420	61	
28	Kishori Lal Agrawal	N R F C Intermediate College, Khurja	2418	60	Higher Certificate as Overseer
29	Anand Swarup	R D A V High School, Roorkee	2414	60	
30	Jagdish Chandra Gupta	Herbert College, Kotah	2371	59	
31	Jai Prakash Sanjal	Government C O High School, Roorkee	2352	59	Ordinary Certificate as Overseer
32	Mehdi Ali	S D College, Muzaffarnagar	2289	57	
33	Umrao Singh Sharma	D S Intermediate College, Aligarh	2276	57	

1941

No	Names	Where educated	Marks gained	Per cent	Remarks
34	Sayid Mehdi Naqvi	Muslim Univer sity, Aligarh	2272	57	Ordinary Certificate as Overseer
35	Ram Kumar Sharma	S M Intermedi ate College, Chandausi	2258	56	
36	Shanti Saran Agarwal	Bareilly College, Bareilly	2228	56	
37	Uma Shanker..	Meerut College, Meerut	2210	55	
38	Om Prakash Kansal	N A S High School, Meerut	2188	55	
39	Ejaz Hussain	Kali Charan High School Luck now	2186	55	
40	Hira Lal Gupta	D A V High School, Agra	2157	54	
41	Radhay Lal Agarwal	S M Intermedi ate College, Chandausi	2121	53	
42	Chintamani Tewari	Government In termediate Col lege, Etawah	2081	52	
43	Brij Bhushan Lal	S D E High School Muza ffarnagar	2035	51	
	Maresh Narain (Bharptpur State)	Sardar High School, Bharat pur	2346	59	

1941

No.	Names of students	Remarks
DRAFTSMAN CLASS THIRD YEAR		
1	Santa Perna	First Division Silver Medal and Rs 30 for best draftsman Quali- fied in Estimating
2	Chatterjee Gupta	First Division Silver Medal and Rs 20 for 2nd best draftsman Qualified in Estimating
3	Nawal Kishore	First Division. Qualified in Esti- mating
4	Tara Chandra Dhar	Second Division. Qualified in Esti- mating
5	Mohammad Hossain Ansari	
6	Amir Ahmad Siddiqui	Third Division Not Qualified in Estimating
7	Hari Prasad Vaid	Second Division. Qualified in Esti- mating certificate awarded on 6th September, 1941 (Completed course in two years)

1941

PERCENTAGE OF MARKS OF STUDENTS

The following table shows the percentages of marks gained by the various classes for the last five years and the numbers that qualified :—

Year	Civil Engineer Class									Overseer Class					
	3rd Year			2nd Year			1st Year			2nd Year			1st Year		
	Highest marks	No qualified	Average marks	Highest marks	No qualified	Average marks	Highest marks	No qualified	Average marks	Highest marks	No qualified	Average marks	Highest marks	No qualified	Average marks
1936-37	72	15	63	82	21	69	81	24	66	70	22	58	83	36	63
1937-38	78	21	66	79	25	65	80	31	65	78	36	60	76	42	59
1938-39	73	24	59	78	31	64	81	34	66	76	44	62	80	41	60
1939-40	75	26	65	83	32	63	79	30	65	82	41	61	85	47	
1940-41	82	32	66	82	30	64	75	34	64	82	44	62	80	37	59

ANNUAL REPORT

From

RAI BABADUR MADAN GOHAL SARDANA

Principal,

THOMASON COLLEGE OF CIVIL ENGINEERING

ROORKEE,

To

THE DEPUTY SECRETARY TO GOVERNMENT

UNITED PROVINCES

EDUCATION DEPARTMENT

Dated Roorkee the 15th July 1941

Sir,

I HAVE the honour to forward herewith the annual report on the Thomason College of Civil Engineering at Roorkee for the session 1940-41 together with the statement of accounts for the financial year ending 31st March 1941.

ADMINISTRATION

2 The following non-official and officials were members of the College Advisory Council during the session

(a) Mr I. M. LALE B. E. C. E. I. S. E. Chief Engineer Irrigation Branch United Provinces President until his retirement on 23rd May 1941 when his place was taken by Mr L. B. Gilbert B. Sc. I. S. E. Chief Engineer Buildings and Roads Branch United Provinces.

(b) Mr L. F. Dawson B. A. M. A. I. S. E. Chief Engineer, Irrigation Branch United Provinces

(c) Mr J C Powell Price, M A , C I E , I E S , Director of Public Instruction, United Provinces

(d) Thakur Phul Singh Sahab, B A , LL B , M L A , of Saharanpur, as representative of the Legislative Assembly

(e) Pandit Keshava Deva Malviya, M Sc , M L A , 143 South Malaka, Allahabad, as representative of the Legislative Assembly

(f) Mr Gerald Lacey, B Sc , M I N S T C E , as representative of the Institution of Civil Engineers, London, S W 1

(g) Rai Bahadur Chhuttan Lal, M I E , as representative of the United Provinces Branch of Institution of Engineers, India, up to 27th February, 1941, and thereafter Mr H G Trivedi, M I E , A M I C E , Executive Engineer, Public Health Engineering Department, United Provinces, represented the United Provinces Branch of Institution of Engineers, India

(h) Dr N N Godbole M A , B Sc , Ph D (Berlin), nominated by the United Provinces Government representing the University Education

(i) Rai Bahadur Madan Gopal Sardana, Principal, Thomason College of Civil Engineering, Roorkee, *ex officio* Secretary

One meeting was held on 15th July, 1941

RE ORGANIZATION COMMITTEE

The committee appointed submitted its report to Government. Orders of Government were received on many of the resolutions passed by the committee. Some resolutions are still under the consideration of the Government.

BOARD OF STUDIES

The Board as usual met on various occasions during the session and assisted the Principal by offering their advice and opinions on various matters connected with the internal working of the College.

COLLEGE STAFF

The following changes etc. occurred in the College Staff during the session.

Raj Bahadur M. C. Bijawat on retirement from the Irrigation Branch from 17th January, 1941 has been allotted to continue as Professor of Civil Engineering up to 28th October 1941.

The services of Lieut Colonel J. Crawford, Assistant Professor of Mechanical and Electrical Engineering have been placed at the disposal of the Government of India Defence Department with effect from 15th May 1941 and Mr B. L. Sharma Lecturer in Mechanical Engineering has been appointed to officiate him from the same date.

Mr V. G. Garde, Assistant Professor of Civil Engineering was on leave on medical certificate from 27th January to 14th March 1941 and Mr Jai Krishna Personal Assistant to Principal did his lecture work in addition to his own.

Dr Z. U. Ahmad Lecturer in Electrical Engineering, was on leave on medical certificate from 3rd February to 27th March, 1941. Lieut Col J. Crawford, Assistant Professor of Mechanical and Electrical Engineering, and Mr B. L. Sharma Lecturer in Mechanical Engineering performed his duties in addition to their own.

DEPARTMENTS

The departments into which the College is divided, remained unaltered. No orders of Government have yet been received on the suggestions made to the Re organization Committee for re organizing these departments.

The control of the Draughtsman Class was transferred from the Headmaster, Overseer Class, to the Lecturer in Drawing.

CIVIL ENGINEERING

Though the staff in this department is still short yet the normal instruction has been carried out. The whole of the staff was very hard worked.

The revised new course of study approved by Government was introduced from this session.

Projects—The 3rd year students were given the usual 'minor' and 'major' projects.

The minor project was for a road from Puankaliar to Bhagwanpur joining Hardwar Roorkee road to the Roorkee-Saharanpur road without entering into the Roorkee city.

The major project was set by Rai Bahadur Pitam Chand Agarwal, I S E, Executive Engineer, Upper Division, Eastern Jumna Canal. It was for a Feeder Channel taking out of the Babail distributary, Eastern Jumna Canal to supplement the supply of the Deoband Branch by 200 cusecs. Rai Bahadur Pitam Chand Agarwal's report on the project is as follows.

The project this year presented problems of a complicated nature, which the novices must have found difficult to solve, but nothing easier could meet the approval of the College authorities. It should, therefore, be a matter of gratification to all concerned that the students should have been able to pass through the ordeal successfully.

As regards the actual designs put forward by the students the following comments may be useful to them.

Some of the students have taken the feeder off the Indus from a point above the Sahranpur Dehra Dun fall and others from below it. Both the alignments are feasible but the latter one is more economical and therefore the better of the two. Had the students explored the tract lower down the Babul they would have been able to hit upon a still better line. All the students have correctly chosen the sites for the Hindan Nadi crossing, on which hunged the whole alignment. All of them realized that in the case of the feeder it was unnecessary to follow the watershed slavishly, but many have erred in following and twisting the line unnecessarily for the sake of square crossings. Very few have appreciated the importance of keeping the economical design in mind when determining the formation line. None has kept the line sufficiently low to give the required head room for a clearance below the North Western Railway, which could be done by a slight manipulation of the position of falls.

Very few students have plotted the longitudinal sections of the channels correctly, and all of them have omitted to plot therein the details of the Babul distributary or the Deoband Branch.

A good many students have provided a regulator at the head of the feeder, which was unnecessary, while none has shown how the channel is going to join the Deoband Branch.

All the students have very rightly gone in for an aqueduct over the Hindan Nadi instead of a syphon or a level crossing. The design of the aqueduct has been

carefully thought out and reinforcements calculated in great detail, but every one of them with a single exception has overlooked the necessity of guarding against the failure of the structure by blowing out through the back of the abutments. No pitching of any kind has been provided by anyone on the river flanks.

Bridges and falls have been correctly designed by all except for minor mistakes. Most of the designs for the footbridges are flimsy.

All the students have designed the minor correctly, although its length could be curtailed by a few furlongs with advantage.

Many of the level books are incomplete while some are true replica of others even as regards mistakes, and the back and fore readings. One of the students has not submitted any level book at all.

The standard of design work is high but the same cannot be said of the drawing work. Estimates have been prepared in great detail and calculations accurately made. The reports are generally lucid and show that the students have a grasp of the principles of Engineering involved in the various designs.

Both the students and the staff deserve congratulations on the fine performance."

Visits to works—As far as funds permitted visits were paid to various engineering works by 2nd and 3rd year classes as under:

Civil Engineer class, 3rd year—Sarda Extension Works at Rai Bareilly, Sarda Canal Headworks at Banbassa Water Works, Sewage Disposal Works, Okhla Headworks, Council Chamber, Aerodrome and other works at or near Delhi.

Civil Engineer class, 2nd year—Rocks near about Musorie

Such visits are of the greatest value to the students and it is requested that more money may be allotted for this purpose

Survey—This year the 2nd year Survey Camp which spreads over a period of three weeks every year was held at Jaurasi in January 1911. This place is situated near Landhaura Railway Station. Very useful practical instruction was imparted to the students as usual

Chemistry—The work in this section remains very light as before

PURE AND APPLIED MATHEMATICS

This department undertakes the teaching of Mathematics and Applied Mechanics which in this College means the Theory of Structures and Strength of Materials. The staff now consists of one Professor only who is helped by the Lecturer in Physics. The work has become very heavy and it is necessary that a Lecturer should be appointed in this department

Physics—The work in this section remains light as before but the Lecturer takes share in teaching Mathematics to Civil Engineer Class

DEPARTMENT OF MECHANICAL AND ELECTRICAL ENGINEERING

The work in this department has been carried on as usual. Due to the drastic cut in the grants of this department it has not been possible to add any new machines in the Hydraulic or Heat Engine Laboratory for the last so many years. Most of the existing machines, although quite useful for instructional purposes, are now getting out of date and addition of a

few up-to-date machines is very essential to keep abreast with the times. Some of these machines have been included in the new Schedule of demands and it is hoped that the Government will be able to find money to purchase and instal a few of these, if not all.

The present Motor Generator Set in the College is also now practically on its last legs. It is high time that something was done in this direction to enable us to purchase a new standby plant to avoid the consequences of a sudden breakdown.

OVERSEER CLASS

The situation as regards the staff for the Overseer Class has been the same as in previous three sessions and instruction of the class had to be carried on with the help of the Civil Engineer Class staff.

One student resigned from the 1st year class.

The 2nd year students prepared the following designs :

- (1) Steel truss
- (2) Masonry culvert
- (3) R C culvert
- (4) Plate girder.
- (5) Distributary fall.
- (6) Road siphon

The project prepared by the 2nd year Overseer Class this year was for the construction of a metalled road between Belra and Dandhera, and to connect it to the Roorkee-Hardwar and Delhi-Mussorie Provincial roads. It was set by Rai Bahadur A. C. Mukerji, I.S.E., Executive Engineer, Meerut Provincial Division, whose report on the project is as follows :

"1 The students put in quite a high standard of work in the time at their disposal. The draftsmanship was

generally very good and the survey work too was up to the mark. Calculations were intelligently done, although from the similarity of assumptions and results it is more than probable that they had recourse to the same sources. Of course they were at liberty to consult all relevant literature.

The essentials of the work required of them appear to have been fairly well grasped by almost all the students.

2. With one solitary exception no student included the cost of laying of soling and consolidation of the stone, total costs in the estimate or worked out a rate that should apply to the collection of soling, bricks and stone metal at the site of the work. Although a level crossing with the East Indian Railway line was provided by every student none made any provision for it in the estimate or for a service road for the execution of the work. Very few students appeared to have an idea that the road surface should be dry before it could be painted with Mespalt.

3. The students as a rule did not show that they know how to write the report of a project, what should be included in (a) the general specifications (ii) the detailed specifications and how an estimate consisting of a number of subworks and its abstract of cost should be drawn up and so most of the students appeared to be in difficulties.

4. No student probably found it to be worthwhile to survey the area about Bilra or to consider an alignment (which would have been an improvement on the alignment generally adopted) by keeping more to the west (after crossing the Solan) and having a branch to serve Bilra.

"5 On the whole the students appear to have had a good grounding in the subjects included in the course of their studies and they should do well in their subsequent career

During the session the 2nd year class paid visits to the following works of interest

(1) Kho Bridge near Dhampur

The students gain much useful knowledge from these visits and for the proper training of the Overseers it is essential that more visits should be arranged. It is, therefore, requested that more funds may be allotted for excursion of students

DRAUGHTSMAN CLASS

The control of the class was transferred from the Headmaster, Overseer Class, to the Lecturer in Drawing

There were 25 students in all the three classes

The instruction work continued in the same manner as before but from the next session revised course which has been approved by Government for this class will be introduced

SPORTS AND REGATTA

The annual reports were held on Saturday, 7th December 1940 and the annual Regatta on Wednesday, 4th June 1941. On both the occasions the Staff and students were "At Home" to old students and residents of the station.

The annual Athletic Sports were run practically on the same lines as last year and so far as appeared feasible the running was entrusted to the students. The cross country race was completed by Mr. Kulbir Singh in 26 minutes, the least time in the College records so far being that of 1938 namely 27 minutes 21.2 seconds.

The College record of one mile race was improved this year by Mr. Chaman Lal by 18.8 seconds.

As usual Tennis has been the most popular game of the year and the standard of play has been fairly high.

Students took keen interest in the College Regatta.

The game of cricket this year as in previous years was equally lively. On account of new classes having supplied lesser number of players than those who played out of the College cricket team could not retain the Principal D. K. Shuman Prasad Memorial Shield.

The achievement of the Football team, however, this year was beyond all expectations.

Squash is by far the most popular game in Thomason College. Old courts need resurfacing and this is now in hand.

Matches in all the games were arranged with outstretches and the results were satisfactory.

HEALTH

The health of the students has been excellent this year. There was no case of typhoid in the Civil Engineer Class. Though its cause could not be traced yet all the possible precautionary measures were taken.

DISCIPLINE

The discipline of the College on the whole has been good.

CIVIL ENGINEER CLASS STUDENTS CLUB AND MSS

Club—The Club affairs continued to evoke much interest on the part of students and there were keen contests in the election of various secretaries. This is a healthy sign. The old radio set was replaced by a new one. Indoor games including billiards were continued as usual. Reading room needs extension. This will be done when funds are available.

Common Mess—The Civil Engineer Common Mess continues to serve a very useful purpose. It inculcates a sense of corporate life amongst the students. The popularity of this institution is growing at a rapid pace as is shown by the increase in the number of membership from 47 to 73.

New sets of crockery, etc. were purchased this year.

In view of the increase in the membership the existing dining hall needs remodelling to provide extra seating accommodation and an estimate for this is being submitted.

Kitchens also require alterations and extension.

OVERSEER CLASS CLUB

The Club continues to serve the useful purpose of a common meeting ground for all the students. The students take sufficient interest in Hockey, Football and Tennis but the boating does not appear to be very popular with them. Football playing ground needs improvement and the scheme to improve it is in hand.

THE LION MAGAZINE

The magazine requires more support from the students in the way of supplying articles if the present interest has to be maintained. One copy of the magazine has been issued this session.

THOMASONIAN SOCIETY

The Thomasonian Society occupies an important place in the technical education of the students of this College. The presentation of technical papers in a concise and lucid form makes the students look for information and material further afield than the books included in their course and thus widens their outlook and gives them a firmer grasp of the subject.

So far debates used to be held mostly on social and general subjects and the award of the Lacey Prize was decided on the

result of the last debate of the session. From this year the system has been changed and the students are required to prepare and read technical papers at the meetings of the society and answer questions to elucidate any obscure points. Three members of the staff act as judges and award marks to the speakers. To enable the 1st year students to take part in these meetings social and general subjects are also permitted.

BOOK DEPOSIT

The arrangement made with the Central Press to have a Book Depot in the Branch Press at the College where students can obtain copies of the text books recommended by the College at 12½ per cent off published prices continues to work satisfactorily.

COLLEGE MANUALS

No revised Manual has yet been sent to Press for printing. Revision of Survey Manual Part II has been completed by Mr. S. R. Singh. Irrigation Manuals Parts I and II are being revised by Rai Bahadur Mool Chand Bijwani and Drawing Manual by Mr. P. L. Sharma.

LIBRARY

The total number of books in the library is 26,930. Library lacks many recent books of importance on Engineering subjects and also renewal of old and out of date books. More shelves are required to keep the books and this is being looked into.

BUILDINGS AND GROUNDS

Every possible endeavour has been made to maintain the buildings and grounds in a satisfactory state of repairs. When it is remembered that most of the buildings are very old it will appear that the grant for their maintenance is very meagre. To add to our difficulties the already insufficient

allotment was further reduced by Rs 4,000. It is hoped that this was done only as a temporary measure in consideration of acute financial stringency and that the grant would again be restored as soon as conditions improve.

No funds were allotted for minor and petty works, proposals for which were submitted to Government.

ELECTRIC INSTALLATION

The decision of Government is still awaited in regard to the electric supply of the College. The existing Motor Generator Set is now very old and consequently unreliable.

ENTRANCE EXAMINATIONS

The competitive entrance examinations for all classes for entry into the College in October 1941 were held from 31st May to 7th June 1941. The number of competitors for the Civil Engineer Class was 180 being the highest since 1932 in spite of the fact that the Punjab Government and the Military Department did not nominate any of their candidates for the examination.

In the Overseer Class entrance examination the number of candidates was 344 the highest since the introduction of the class while in the Draughtsman Class it was 35. This shows that the College is maintaining its popularity.

The following provinces sent their candidates and agreed to pay the cost of their training.

Delhi Ajmer Merwara Jodhpur Rewa and Rampur State
The number of candidates selected for training is as below

Class	Non Muslim	Muslim
Civil Engineering class	29	2
Overseer Class	40	3
Draftsman Class	7	1

I also thank most sincerely all the official and non-official visitors, some of whom have come from long distances who have so kindly found time to grace the occasion with their presence and have shown how interested they feel in the welfare of this College

Though due to financial stringency we have not been able to get money for the improvements we intended to make in the various Departments yet the College is one of the best equipped institutions in India for imparting training in Civil Engineering. The maintenance grant was utilized to the best possible advantage and all the equipment and laboratories were kept up in a proper manner so as to be serviceable for instructional purposes

The syllabus of the various classes has been improved this year. In the Civil Engineer Class practically no Civil Engineering subjects were taught in the first year with the result that there was a congestion in the second and third years. These have now been spread throughout the three years. Previously more time than necessary was being devoted to the subjects of Physics and Chemistry and there was a certain repetition of what the students had already done in Arts Colleges. The time for these two subjects has now been curtailed and more time devoted to Mechanics, Theory of Structures, Hydraulics, Communications, Geology and Workshop Practice.

The Indian Post and Telegraphs Department did not recognize the Overseer's certificate of this College as qualifying for admission to the competitive examination for the cadres of Engineering Supervisors and Wireless Operators, while qualified Overseers of some other Colleges were allowed to sit for the examinations. This was due to the fact that the subjects of Electricity and Magnetism were not being

taught in sufficient details. This deficiency has been removed and it is expected that the students of this College will now be allowed to compete for the examination. Certain further improvements in the syllabus are still necessary and this work is in hand.

The syllabus of the Draftsman Class previously was of an elementary nature. The subject of Estimating was not compulsory and the students were not trained how to calculate stress in simple structures. The result was that they were more of traciers than drafts-men when they passed out. The proposal for improving the course has been submitted to Government and it is expected that it will be introduced from the next session. The subject of Estimating has already been made compulsory.

The College was visited by Colonel Reed in the month of February in connexion with the training of British Non-Commissioned Officers as Military Sub-Divisional Officers and it was proposed that they should be trained in the College. The proposal has been approved by Government and the Non-Commissioned Officers will join the College tomorrow.

Mr Chatterjee Regional Inspector visited the College Workshops in April and it was decided that 80 War technicians should be trained in the College. This proposal also was accepted by Government. Mr Saxena Senior Regional Inspector on a visit to the College in May, suggested that this training could be given by shifts and by providing some more equipment 180 technicians could be trained. Government has now approved of the proposal and we hope that the trainees will soon be joining the College.

The last batch of the Punjab students is leaving the College now. From the next session there will be no Punjab students except those who agree to pay their own contribution.

The College is one of the oldest and unique institution of its type but it has no Old Boys' Association. It has now been proposed to form one and a preliminary meeting for the purpose will be held today.

The College has again maintained its reputation in the competitive examinations of the Indian Railway Service and Central Public Works Department as two out of the four posts were secured by the students of this College. Mr J T Talibuddin who passed out in the year 1939, topped the list.

The students continue to take a keen interest in all games and sports and their health has been very good on the whole. There has been only one case of serious illness due to typhoid. It has not been possible to trace out its cause. The College Medical Officer has suggested certain measures against recurrence of the case and they have been adopted. The Civil Engineer Mess has become very popular now, the membership this year having increased to 73 as against the previous average of about 45. The discipline of the students has also been good on the whole.

There have been no changes in the Staff during the year. The services of Lieut Col J Crawford have been transferred to the Defence Department and arrangements to fill the vacancy are being made.

I now with your permission Sir, review the work of the past session.

The Council of India Prize of Rs 1 000 which is awarded to the best student of the Civil Engineer Class passing out has been won by Mr Vidya Ram Vaish. He has obtained 82.5 per cent marks and has also carried off the following prizes.

The Cantley Gold Medal to the best Mathematician the Calcott Reilly Memorial Gold Medal to the best student in

Applied Mechanics the General Macdigan prize of books for Electrical Engineering and Physics the Sushila and J. Mitra Memorial Silver Medal to the best student in Chemistry, Silver Medals for Civil Engineering theory and Mechanical Engineering. He also wins the Harcourt Butler Cup for the best student in Studies and Games combined. He deserves our hearty congratulations. The Thomson prize of Rs 250 which is awarded to second best student goes to Mr. Salur Ali Wahidi who has obtained 80 per cent marks and has also won the Puran Mal Silver Medal for obtaining the highest marks in external examination in Public Health Engineering. The Rai Bahadur Kambhaya Lal Gold Medal for the third best students goes to Mr. Om Prakash Mittal who also carries off the Silver Medal in Surveying. We congratulate both of them for their good work.

The blue ribbon award of this College i.e. the Thomson Memorial Gold Medal for the best engineering design has been won by Mr. K. K. Chakravarti who has obtained 80.4 per cent marks. We congratulate him heartily for his brilliant achievement. The Major Project this year was examined by Rai Bahadur Pitam Chand Agarwal I.S.E., Executive Engineer, Upper Division, Eastern Jumna Canals. It was for a Feeder Channel taking out of the Bibai distributary Eastern Jumna Canal to supplement the supply of the Deoband Branch by 200 cusecs. Rai Bahadur's remarks on the project are as below.

The Project this year presented problems of a complicated nature which the novice must have found difficult to solve but nothing easier could meet the approval of the College authorities. It should therefore be a matter of gratification to all concerned that the students should have been able to pass through the ordeal successfully. As regards the actual designs put

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forward by the students the following comments may be useful to them

Some of the students have taken the feeder off the Babul from a point above the Saharanpur Dehra Dun road and others below it Both the alignments are feasible but the lower one is more economical and therefore the better of the two Had the students explored the tract lower down the Babul they would have been able to hit upon a still better line All the students have correctly chosen the sites for the Hindan Nadi crossing, on which hinged the whole alignment All of them realized that in the case of the feeder it was unnecessary to allow the watershed slavishly but many have erred in bending and twisting the line unnecessarily for the sake of square crossings Very few have appreciated the importance of keeping the economical digging in mind when determining the formation line None has kept the line sufficiently low to give the required head room for a clear crossing below the North Western Railway which could be done by a slight stipulation of the position of falls All the students have very rightly gone in for an aqueduct over the Hindan Nadi instead of a siphon or a level crossing The design of the aqueduct has been carefully thought out and reinforcements calculated in great detail but every one of them with a single exception has overlooked the necessity of guarding against the failure of the structure by blowing out through the back of the abutments No pitching of any kind has been provided by any one on the river flanks The standard of design work is high but the same can not be said of the drawing work Estimates have been prepared in great detail and calculations accurately made The reports are generally lucid and show that the students have a grasp of the principles of Engineering

involved in the various designs. Both the students and the Staff deserve congratulations on the fine performance."

We are extremely thankful to Rai Bahadur Pitam Chand Agrawal and Rai Bahadur A. C. Mukerji who so kindly examined the Overseer Class Project for the pains they took in doing the work.

In the Civil Engineer Class 2nd year all the 12 students have passed out of which 11 students have obtained Honours Certificate. The students have done very well this year as in the final examinations papers for which are all set by external examiners the first student has obtained 78.7 per cent and the average marks of the whole class are 58.2 per cent.

In the 2nd year class all the students have passed except one who fell ill at the time of the final examinations. He will have to repeat the course.

In the 1st year class all the 34 students have passed.

In the Overseer Class 2nd year also all the students have passed 27 students obtaining higher certificate. Mr. Krishna Chandra stands first getting 82.1 per cent marks. He also carries off the General Merit prize of a Silver Medal and Rs 100 the Kavy Memorial Silver Medal and Rs 18 for Estimating the Durga Das Dutt Memorial Silver Medal, Rai Bahadur Kanhaiya Lal Silver Medal for being the most distinguished Indian student the Parry Memorial Silver Medal for Applied Mechanics Sullivan Memorial Silver Medal for Mechanics and Silver Medals for Descriptive Engineering Surveying and Workshop Practice.

In the first year class out of 43 students one resigned and five have failed who will be allowed to repeat the course.



in Arms Drill Field Craft and Bayonet fighting and Sports. With the passage of time and we have felt there is a further scope for expansion to full company and we hope our wishes will be considered.

The number of candidates who appeared for the entrance examinations this year was as follows:

Civil Engineer Class	164
Overseer Class	319
Draftsman Class	26

In the Civil Engineer Class the number is the largest since the year 1912 and in the Overseer Class it is the largest since 1922 when the class was started. In the Civil Engineer Class 40 students have passed the competitive examination and they will be admitted for training. The number of successful students in the Overseer Class is 60 out of which 32 have been selected for training. In the Draftsman Class 6 students are being admitted.

As I let the outgoing students before I close. The War presents a deadlier appearance now than it did when I addressed you last year and it is nearer us than it was before. The fate of many nations hangs in the balance. You will remember that it is a war of the Scientist and Engineer combined. We as Engineers therefore are in duty bound to do our bit. I take it that some of you have already decided to join the Military Service. To them and to those who will follow them later I would say that at the present moment this is the best use of your talent and the knowledge you have gained here. By doing so you will be serving your country by curbing the designs of an aggressive tyrant who to attain his selfish ends of world domination is reducing democracies to bondage and is destroying everything that is good in civilization.

In the end I most sincerely thank the entire Staff for the way they discharged their duties and gave me their unstinted co-operation in the working of the College.



COLLEGE CONVOCATION

J 14 1941

breadth of India. Further, attention has been paid to the syllabus to bring it up to date, but the major project, that long term exercise in the practical application of the theoretical principles learnt during the three years' course still forms a principal part of the training and in the opinion of many qualified to judge, the most important part. The College is controlled by the Department of Public Instruction but the Department is assisted by an Advisory Council which consists of the Chief Engineers of the Irrigation and Buildings and Roads Branch of the Public Works Department and representatives of leading engineering bodies, of the universities and the Legislature, and this body is available for technical and general advice and is being made full use of both for supervision and for control of the syllabus. With the expert advice of this body, and of the staff of the College and the experience of the Department, the standard of papers, the efficiency of the instruction given and the reputation of the College, will never be allowed to deteriorate. I have been permitted by Government to use this opportunity to make an announcement which I know will be of interest to all connected with the College. This is that in future the two top men of the Civil Engineering Class will be appointed direct to the Public Works Department in whatever branch there are vacancies. Other vacancies will be filled as usual through the Public Service Commission but these two vacancies will be open for direct recruitment irrespective of community to the two top men of the year. This will undoubtedly have an effect on the attitude towards work of the students and will attract the best brains to the College.

We have you have heard today, lost the last of the Punjab students. The Punjab is indebted to this College for training its engineering students for a considerable time but when provincial autonomy came in it was decided that they would

train their men at their Mechanical Engineering College in Lahore which was expanded to give instruction in civil engineering. This is of course entirely their own concern and this province has always been happy to offer them its hospitality and will be ready to receive them again if they find the facilities insufficient or the standard less high.

In 1935 the College was asked by Army Headquarters to extend its facilities to the Indian Military Academy's students who were going in for military engineering and with some difficulty a three years course for these was arranged. There is little doubt that the training they were given was most valuable and indeed I have never been able to understand why the scheme was not proceeded with. Is similar training cannot be put elsewhere in India. But the outbreak of the war perhaps necessitated shorter courses of a more intensive nature. We who were connected with the College know that it was not due to anything wrong with Roorkee that the scheme was discontinued and we felt that we were performing a useful service to the Army and that the training given here added considerably to the value of the finished military product. We are always ready to help in anything connected with war effort and have been ready since the beginning of the war. Though it is almost two years after we first offered we are happy to think that our facilities are at last being made use of. We start at once on a refresher course for non-commissioned technical officers conducted by our staff in their own time and I take this opportunity to thank them for their most public spirited offer, for it will be no light addition to their duties. Further we are taking into our workshops 178 fitters, turners, tin and copper smiths, machinists, grinders, electric welders and electricians under the Government of India technical training scheme and will continue these courses as long as

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In 1935 the College was asked by Army Headquarters to extend its facilities to the Indian Military Academy's students who were going in for military engineering and with some difficulty a three years' course for these was arranged. There is little doubt that the training they were given was most valuable and indeed I have never been able to understand why the scheme was not proceeded with as similar training cannot be got elsewhere in India. But the outbreak of the war perhaps necessitated shorter courses of a more intensive nature. We who were connected with the College know that it was not due to anything wrong with Roorkee that the scheme was discontinued and we felt that we were performing a useful service to the Army and that the training given here added considerably to the value of the finished military product. We are always ready to help in anything connected with war effort and have been ready since the beginning of the war. Though it is almost two years after we first offered we are happy to think that our facilities are at last being made use of. We start at once on a refresher course for non-commissioned technical officers conducted by our staff in their own time and I take this opportunity to thank them for their most public spirited offer, for it will be no light addition to their duties. Further we are taking into our workshops 178 fitters, turners, tin and copper smiths, machinists, grinders, electric welders and electricians under the Government of India technical training scheme and will continue the same courses as long as

necessary. We have released one of the Assistant Professors Lieut Col Crawford who for so long ran the U T C and commanded the A T (I) Dehra Dun in his infrequent spare time. He has been gazetted as a Lieutenant Colonel and sent to perform work for which he is well qualified. We will as far as we are able, release others if called upon.

Those who leave here as trained civil engineers and overseers are valuable recruits to the technical services of the Army and some I understand have been taken, but this war is a total effort and more will be required. In times of peace one can prepare for the works of peace, and, of these none are more beneficent than those of the civil engineer. In India with its climatic conditions and the seemingly irrational distribution of rain and water the irrigation engineer is indeed the saviour of the cultivator. These great canal systems, which add so much to the wealth and well-being of the Province, look to Roorkee to provide them with the skilled supervisors who are so necessary to their success and well being and not only this Province. The Thomson College has provided engineers and especially Irrigation Engineers for most of India and in the Punjab much of the work is still done by the products of this College. In a very true sense then have your *alumni* been benefactors to the people. The Buildings and Roads Branch of the Public Works Department has also drawn men of distinction from this College and though it is often the fashion to talk of a Public Works Department style of architecture, when asked to produce a building of distinction as distinct from a workmanlike place to work in the Buildings and Roads Branch have proved by many a distinguished example that they are not only engineers but architects as well. Then there is the Public Health Branch which is responsible for water works and drainage schemes that is as responsible as the system

of local self government allows them to be. If given a freer hand they would undoubtedly make the United Provinces cities healthier places. Thus we may sum up the peacetime avocations of engineers as purveyors of great system-bringing water to the millions of acres which without it would be mere deserts—expanses of drifting sands like those parts of North Africa where once the Romans made a smiling country of corn and vines and plenty but which the neglect of irrigation has reduced to sand dunes and desolation. Others builders of mighty bridges across the great rivers of the Gangetic plain the wonders of the world, and at the same time of those smaller bridges up in the valleys of the Himalaya which carry the pilgrims in their search for the source of happiness and the end of pain. Others again drainers of mosquito breeding marshes of stagnant swamps and purifiers of great cities. It is a noble record and no wonder Roorkee is proud of her sons who go out to undertake these mighty works. But now you are faced with even a greater task. Before the world can relax once more to these daily tasks, to the usual routine of even seed time and harvest there is a greater effort to be made to bring the healing waters of civilization back to the desert that the Hun has made and to ward off from this great country the miasma of Nazi doctrines and Nazi domination. We have so far been sheltered by distance, by the fleet and by the forces sent from India, from England, and from the dominions, from any onslaught of the Nazi hordes and probably in all the world there has been no place so free from war and its effects than India. Little has been the increase in taxes which the war has necessitated here and indeed so far away has it all seemed that one political party has even been able to affect an attitude of disinterestedness.

'Let us keep away from the tumult' has said one of its leaders. But tumult has a way of spreading unasked and the attitude of escapism, of affecting not to see a danger, and

hoping by ignoring it to prove it does not exist—that attitude will not protect us from aerial bombardment, from parachute troops or from that armoured attack from land and air which is the Nazi technique, attended by the barbarities against unarmed and helpless civilians, against women and small children which is the Nazis deliberately adopted procedure. So those of you who feel that your training has made you fit to serve civilization in this last stand against the forces of evil of barbarism and of devilishness will not, I hope, be put off from this task by any consideration of difficulties and of hardships but will feel that it is your duty to resist aggression and degeneration and uplift the standard of liberty and civilization. We can no longer leave to others the task of keeping the ring while we argue about the definitions of freedom—while this is going on the reality of liberty may be filched away from us. We must in India wake from dreams of unreality from the depths of misty imaginings and ourselves defend these liberties or we will wake and find no liberty remains. Remember what Mr Winston Churchill said last February in order to win the war Hitler must destroy Great Britain. He may carry havoc into the Balkan States, he may tear great provinces out of Russia, he may march to the Caspian, he may march to the gates of India. All this will avail him nothing and all the time masters of sea and air, the British Empire may the whole English speaking world—will be on his track bearing with them the swords of justice and among these bearers of the swords of justice will I am sure be a fair proportion of men from this College—and they will not bear the sword in vain.”

Mr J. C. Powell Price then gave away the prizes

I have the honour to be,

Sir

Your most obedient servant,
MADAN GOPAL SARDANA,

Principal

ANNUAL REPORT

APPENDIX I

Classified abstract of education payments in the United Provinces for 1940-41 from April 1940 to March, 1941, supplementary

Number of detailed heads	Payments	Amounts
D—Government Professional Colleges (a) Civil Engineering College Roorkee		
<i>Pay of officers</i>		Rs a p
27	Principal (Charged)	25 13 0
28	Do (Voted)	13 00 0 0
29	Professors (Charged)	25 638 9 0
30	Do (Voted)	14 536 15 0
31	Other officers (Voted)	67,723 3 0
32	Medical Officer special pay	600 0 0
33	Allowance to instructors	464 0 0
33A	Deduct—Recoveries on account of Family allotment of officers (Charged)	(—)1 605 12 0
Total		96 384 0 0
		24 976 10 0
<i>Pay of establishment</i>		
34	Instructors	2 340 0 0
35	Foremen Draftsmen Mechanics etc	9 209 9 0
36	Passed apprentice overseers	5 86 15 0
37	Clerks	10 8 2 3 0
38	Servants	6 984 11 0
39	Medical establishment	512 4 0
Total (Voted)		35 731 10 0
40		2,676 14 0
41		2 12 0
42		
43		
44		1 185 0 0
Total		3 861 14 0
		22 12 0
45	Grant in-aid—Contribution for passages of officers transferred from or to other Government departments (Charged)	
Total College department carried over		1,36 177 10 0
		24 2 0 0

*Classified abstract of education payments in the United Provinces
for 1940-41 from April, 1940 to March, 1941, supplementary—(concluded)*

Number of detailed heads	Payments	Amounts
		Rs a. p.
Total, College department, brought forward.	{ Voted ..	1,36,177 10 0
	{ Charged ..	24,299 6 0
<i>Contingencies</i>		
46. Purchase and erection of machinery workshop		13,355 10 0
47. Laboratory—(a) Purchases from England ..		52 12 0
48. Laboratory—(b) Purchases in India ..		3,716 5 0
49. Maintenance of generating station ..		3,673 4 9
50. Survey expenses		4,954 4 9
51. Material for industrial class		477 10 6
52. Excursion charges of students		700 0 0
53. Stores (in India)		692 2 6
54. Prizes and fees		4,363 10 0
55. Other supplies and services		5,769 15 0
56. Customs duty on stores		1,064 0 9
57. Contract		7,148 5 0
58. Pay of menials		7,681 8 0
<i>Non-contract</i>		
59. (a) Purchases from England .. ..		..
60. (b) Purchases in India		3,011 2 6
Total (Voted) ..		56,660 10 9
Total, College department ..	{ Voted ..	1,92,838 4 0
	{ Charged ..	24,299 6 0
Maintenance and repairs		24,074 11 0
37. Civil Engineering College		21,319 8 0
61. Deduct—Contribution from other Governments for training of students		—10,375 0 0
TOTAL, ROORKEE COLLEGE..	{ Voted ..	1,70,463 4 9
	{ Charged ..	+23,319 8 0
		24,299 6 0
Scholarships		11,147 3 0
Examination charges		3,071 0 0

*Receipts of Thomason College of Civil Engineering Roorkee,
in the United Provinces, for the year 1940-41*

Number of detailed heads	Receipts	Amount
F—Civil Administration, XXVI—Education, Provincial		
A—University		
		Rs. a. p
503	Fees, Civil Engineering College, Roorkee ..	33,658 7 0
E—General		
<i>Miscellaneous</i>		
511	Examination fees, Civil Engineering College	6,770 0 0
513	Workshops manufacture ..	258 10 0
		<hr/>
	Total, receipts ..	39,687 1 0
		+1,000 0 0
		<hr/>
	Rent on buildings	9,927 3 0
	Miscellaneous—Electric light receipts ..	7,006 6 2
	Conservancy	212 2 0
	Water tax from students	1,078 8 0
	Miscellaneous	403 0 6
	Water tax on residential buildings.. ..	1,523 14 0
	Receipts other than revenue	54 5 0
	Income from endowments	468 11 6

*Statement of the annual accounts of the Thomason College
of Civil Engineering Workshops, Roorkee, for the year
1939-40*

Receipts	Amounts	Expenditure	Amounts
	Rs a p		Rs a p
Manufacture ..	224 6 0	Salaries of Assistant Professor of Mechanical and Electrical Engineering	9,813 14 0
Electric light charges	6,410 4 0	Salaries of Lecturer in Mechanical Engineering.	7,987 12 0
		Salaries of Lecturer in Electrical Engineering	1,512 13 0
		Salaries of Foremen and Assistant Foremen	5,703 6 0
		Salaries of Linesman	600 0 0
		Salaries of Store-keeper.	420 0 0
		Salaries of Electrical Laboratory Attendant	420 0 0
		Salaries of Electrical Laboratory boy.	154 0 0
		Salaries of Mistri, Water works	480 0 0
		Salaries of Workshop Guards.	707 8 0
		Travelling allowance	59 14 0

Statement of the annual accounts of the Thomason College of Civil Engineering Workshops, Roorkee, for the year 1939-40—(continued)

Receipts	Amounts	Expenditure	Amounts
	Rs a p	<i>Manufacture</i>	Rs a p
		Non contract Contingencies—Purchase and Erection of Machinery Work shops	13,726 14 0
		Maintenance of Generating Station	4,499 15 0
		Laboratory and class charges	662 14 0
		Electrical Laboratory	347 7 0
		Cost of energy	5,285 7 6
		Maintenance and repairs (Water works)	1,230 7 0
		Non contract, other non contract contingent charges purchases in India	3,177 14 0
Total	6,634 10 0	Total ..	56,790 3 6

Manufacture account

(Including credit sales of stock and instruction charges for students)

Cash receipts	224 6 0	Opening balance	62 9 0
Unrealized balance		Labour	27 11 6
		Stock (including credit sales)	105 6 3
		Direct charges	24 15 2
		Profit on private works	3 12 1
Total	224 6 0	Total ..	224 6 0

Stock account

Opening balance	961 5 6	Issues to works including credit sales	105 6 3
Cash purchases	..	Closing balance ..	855 15 3
Total	961 5 6	Total ..	961 5 6

Statement of the annual accounts of the Thomason College of Civil Engineering Workshops, Roorkee, for the year 1939-40—(concluded)

Receipts	Amounts	Expenditure	Amounts
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Energy account

	Rs	a	p		Rs.	a.	p.
Cash receipts ..	6,410	4	0	Cost of energy	5,285	7	0
Unrealized lance ba	30	2	0	Profit	1,154	14	0
Total ..	6,440	6	0	Total ..	6,440	0	0

Tools and plant account

Opening balance	81,348	2	0	Depreciation .	8,273	9	0
*Purchases during the year.	3,938	4	0	Closing balance ..	77,012	13	0
Total ..	85,286	6	0	Total ..	85,286	0	0

	Rs.	a.	p.
*Non-contract Contingencies, Purchase and Erection of Machinery Workshops	552	7	0
Non contract Contingencies, Maintenance of Generating Station	37	8	0
Non contract Contingencies, Laboratory, Stores Purchased in India, Laboratory and class charges	28	0	0
Non-contract Contingencies, Laboratory, Stores Purchased in India Electrical Laboratory ..	142	1	0
Contingencies, Non-contract, other non-contract Contingent charges purchases in India .	3,177	1	0
Total ..	3,938	4	0

TABLE I
Statement showing comparative results of entrance examinations for five years

Names of class	1936			1937			1938			1939			1940		
	Br t sh	Ind ans	Total	Br t sh	Ind ans	Total	Br t sh	Ind ans	Total	Br t sh	Ind ans	Total	Br t sh	Ind ans	Total
<i>Civil Engineer Class</i>															
Examined	1	*81	*82	1	*99	*100	1	*108	*109	3	91	94	114	114	114
Passed		*26	*26		*30	*30	1	*41	*40	1	43	44	37	37	37
Admitted		*20	*20		27	27	1	30	33	1	30	31	30	30	30
		4	4	3	3	3	1	1	1				3	3	3
<i>Overseer Class</i>															
Examined	174	174	174	172	270	270		25	257		280	280	283	283	283
Passed	48	48	48	46	46	46		74	74		87	87	87	87	87
Admitted	40	40	40	45	45	45		40	40		46	46	41	41	41
	2	2	2					3	3		4	4			

* Including I M A G cadets

TABLE II

Civil English and Indian candidates including Defence Department from 1932 to 1940

Provinces	Came up for the examination		Passed the Entrance examination		Passed the Final examination		Total of all classes	
	Free Class	Overseas Class	Engineer Class	Overseas Class	Engineer Class	Overseas Class	Came up	Passed the Entrance examination
United Provinces	1518	3363	360	1009	334	558	4871	1389
Punjab	1104	27	269	5	211	2	1141	274
North West Frontier	27	4	3		5		31	5
Bengal	9		1		1		9	1
Central Provinces	46		3		5		46	3
Burma	4		3		3		4	3
Central India	1			1			5	1
Rajputana	14	4	3	2	1	1	30	5
Baluchistan		16					3	
Indian States	55	42	10	18	6	13	97	28
Bihar and Orissa	9	1	1				10	1
Delhi	64	10	11	1	7		64	10
Ajmer merwara	13	21	12	8	6	6	34	8
Defence Department	16						16	12
Madras	1						1	
Total	2873	3479	678	1044	481	580	6302	1702
								1081

Note—For figures from 1880 to 1921 to Thomason College Calendar for 1930

TABLE III

Comparative statement showing numbers in College on 1st April of each year

Name of class	1937			1938			1939			1940			1941		
	British	Indians	Total	British	Indians	Total	British	Indians	Total	British	Indians	Total	British	Indians	Total
Civil Engineer Class	3	60	63	2	75	77	1	90	91	2	87	89	2	94	96
Apprentice Overseers	..	17	17	..	18	18	..	9	9	..	7	7	..	7	7
Overseer Class	..	63	63	..	80	80	..	90	90	..	91	91	..	87	87
Craftsman Class	..	10	10	..	16	16	..	19	19	..	24	24	..	25	25
Total	3	150	153	2	195	197	1	208	209	2	209	211	2	213	215

TABLE IV

Comparative statement of religious denominations of the Staff and students

Class	1936-37				1937-38				1938-39				1939-40				1940-41			
	Christians	Hindus	Muslims	Total	Christians	Hindus	Muslims	Total	Christians	Hindus	Muslims	Total	Christians	Hindus	Muslims	Total	Christians	Hindus	Muslims	Total
Staff ..	7	31	3	41	5	35	2	42	3	31	3	37	1	30	5	36	1	29	5	35
Students ..	4	122	10	136	3	165	11	179	2	176	22	200	2	180	22	204	2	176	20	206
Apprentice Overseers	17	..	..	17	..	17	1	18	..	9	..	9	..	7	..	7	..	7	..	7
Total	11	170	13	194	8	217	14	239	5	216	25	246	3	217	27	247	3	212	35	260

TABLE V
Comparative statement showing the transactions of the various College funds from 1st April, 1940 to 31st March, 1941
(The property of the funds is excluded)

Name of fund	Balance on 1 st April, 1940	Receipts during the year 1940-41	Total	Expenditure during the year 1940-41	Balance on 31 st March 1941	Remarks
	Rs a p	Rs a p	Rs a p	Rs a p	Rs a p	
<i>Civil Engineer Class</i>						
Recreation	4,750 12 8	7,347 2 3	12,097 14 11	9,240 10 1	2,857 4 10	
Club ..	1,318 12 9	3,849 9 11	5,168 6 8	4,080 2 0	1,088 4 8	
Mess (Common)	1,276 14 4	1,291 5 5	2,568 3 9	1,266 8 0	1,301 11 9	
Passing out scholar ship for Europeans	629 11 6	247 0 2	877 4 8	.	877 4 8	
<i>Overseer Class</i>						
Recreation and Club	2,241 4 4	2,724 6 8	4,965 11 0	2,312 13 0	2,652 14 0	
Boating .	1,438 8 8	1,595 8 11	3,034 1 7	414 14 0	2,619 3 7	

TABLE IV

Comparative statement of religious denominations of the Staff and students

Class	1936-37				1937-38				1938-39				1939-40				1940-41			
	Christians	Hindus	Muhammadians	Total	Christians	Hindus	Muhammadians	Total	Christians	Hindus	Muhammadians	Total	Christians	Hindus	Muhammadians	Total	Christians	Hindus	Muhammadians	Total
Staff ..	7	31	3	41	5	35	2	42	3	31	3	37	1	30	5	36	1	29	5	35
Students ..	4	122	10	136	3	165	11	179	2	176	22	200	2	180	23	204	2	176	30	208
Apprentice Overseers		17	..	17	.	17	1	18	..	9	..	9	.	7	..	7	..	7		7
Total	11	170	13	194	8	217	14	239	5	216	25	246	3	217	27	247	3	212	35	250

TABLE V
Comparative statement showing the transactions of the various College funds from 1st April, 1940 to 31st March, 1941
(The property of the funds is excluded)

Name of fund	Balance on 1st April, 1940	Receipts during the year 1940-41	Total	Expenditure during the year 1940-41	Balance on 31st March 1941	Remarks
	Rs a p	Rs. s p	Rs a p	Rs a p	Rs a p	
<i>Chief Engineer Class</i>						
Recreation	4,750 12 8	7,347 2 3	12,097 14 11	9,246 10 1	2,851 4 10	
Club	1,318 12 9	3,849 9 11	5,168 6 8	4,080 2 0	1,088 4 8	
Mess (Common)	1,276 14 4	1,291 5 5	2,568 3 9	1,268 8 0	1,301 11 9	
Passing out scholar ship for Europeans	629 11 6	247 0 2	877 4 8		877 4 8	
<i>Overseer Class</i>						
Recreation and Club	2,241 4 4	2,724 6 8	4,965 11 0	2,312 13 0	2,652 14 0	
Boating	1,438 8 8	1,595 8 11	3,034 1 7	414 14 0	2,619 3 7	

TABLE VI

Statement showing the number of candidates registered and the number who have obtained employment during 1936 to 1940

Grade	1936		1937		1938		1939		1940	
	Regis-tered	Ap-pointed	Regis-tered	Ap-pointed	Regis-tered	Ap-pointed	Regis-tered	Ap-pointed	Regis-tered	Ap-pointed
Engineers	2	2		2	8		2	6	2	1
Upper Subordinates										
Overseers	8	6	13	8	13	3	10	8	2	4
Lower Subordinates	1								2	1
Draftsmen	2		2	1	1		3		2	1
Total	13	8	17	11	22	3	15	14	8	7

Statement of applications and appointments for the year 1911

Grade	United States					Local and District					Total
	Highways	Waterways	Provincial	Local and District	Provincial	Local and District	Local and District	Local and District	Local and District	Local and District	
Applications from engineers	1	2	1	1	1	1	1	1	1	1	10
	1	1	1	1	1	1	1	1	1	1	44
	1	1	1	1	1	1	1	1	1	1	10
Total	1	1	1	1	1	1	1	1	1	1	10
1,000 points of rough College	1	1	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1	1	1	1
Total	1	1	1	1	1	1	1	1	1	1	7

